

THE AUTOMOBILE



Brilliantly
Conducts

Coupe de la Presse



THE STORM WHICH FOLLOWED THE RACE'S CONCLUSION.

LISIEUX, FRANCE, Aug. 9.—Eugene Renaux, driving a Peugeot, has captured the Press Cup—Coupe de la Presse in the language of the country—on the Lisieux circuit at an average of 53.7 miles an hour, defeating twenty-five cars from the best European factories. A Westinghouse, driven by Vimont, came second, at 53.03 miles an hour; Zélélé, the Abyssinian driver of a De Dion Bouton, obtained third place with an average of 51.5 miles, and his companion, Vrignon, with the same make of machine, got fourth place at an average of 50.7 miles an hour. Eighteen out of the twenty-six starters finished the 243.8 miles, the last to arrive averaging 40 miles an hour.

Compared with the Grand Prix there is nothing startling in the speeds realized on the fast Lisieux circuit, 53.7 miles an hour seeming slow going after the 70.6 of Nazarro. But the Press Cup, though awarded on speed attained, is not a pure speed event. Marquis de Dion, who has small belief in the industrial value of racing, proposed an endurance test for touring cars, and after much insistence obtained the support of the Automobile Club of France for its organization.

Touring machines weighing not less than 3,637 pounds, with four passengers of 154 pounds each on board, but without baggage, tires, or any spare parts, and conforming to certain chassis dimensions, had to accomplish a four-day tour of 960 miles at an average of 21 to 24 miles an hour. Those coming through the touring event on schedule would be allowed, without any change in their gear, to start in the speed test—the Press Cup—on a guarded circuit, with a fuel allowance of 4.1 gallons of gasoline per 62.1 miles.

On the second day of the tour a deplorable accident costing seven lives caused the Minister of the Interior to order the tour stopped. The sad event proved that, in France, touring competitions on unprotected roads are more dangerous than high-speed contests on military guarded circuits. Those having qualified on the first two touring stages were ordered, after the accident, to proceed to Trouville and hold themselves in readiness for the speed test.

They were twenty-six in number, all French, that gathered at 9:45 A.M. for the five rounds over the 48.7-mile circuit. Although the fuel allowance of 16.3 gallons for the total distance, the minimum weight and the obligation of carrying four passengers, brought the competitors to a common basis, there was a large amount of diversity in the machines.

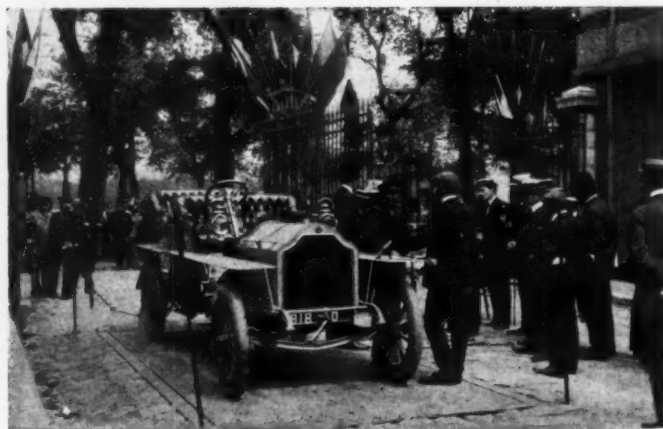
C. G. V. entered a handsome limousine with inside steering, and took four ladies as passengers; during the tour the car was able to hold its own, but it was obviously impossible to compete on equal terms with the others when speed alone decided. The

others, all side-entrance touring cars, adhered more or less closely to standard models. Mud guards generally were reduced to their lowest dimensions and in a few cases replaced by horizontal canvas guards, running boards were in some cases of wood, and a few of the chassis were drilled. Such changes were allowed, provided the weight did not fall below the minimum. Particular attention was paid to the gearing, any increase on the gear examined when the cars left Paris causing disqualification. Gasoline tanks for the occasion had to be carried behind either the front or the rear seats, where, being always visible, the chance of fraud was considerably diminished.

Cup Commission Did Not Favor a Daybreak Start.

It was not the crowd one usually meets at an automobile race—or, rather, it was the same crowd under a different complexion. No necessity to sit up all night to be sure of a place at the starting line at dawn, for the race began at 9:45, after the ladies had donned their most elegant costumes and everybody had eaten a hearty breakfast. It was really a sensible move, for the machines which were to race were touring models, and those who watched them in their magnificent struggle were the people most likely to become their possessors. The promoters of the Press Cup have first had the sagacity to realize that an audience at an automobile race has as much right to good treatment as any other class of probable clients.

Molon's Gladiator had the honor of starting the match, his departure coinciding with the flight of a large red balloon. Two minutes later the imposing Barriaux, with a Motobloc, the tires of which were filled with Elastes, departed, the first driver for many a year to use other than pneumatic tires in a race. De La Touloubre, under which name Captain Genty, head of the army automobile corps, vainly hides his identity, received a special ovation, for his departure had been doubtful. After the accident on the tour, gendarmes held him up for several hours and prevented him reaching control on time; but when the committee had considered his case, it was decided to allow him to start in the race.



SOREL'S DIETRICH, DEFEATED FOR LACK OF GASOLINE.

Regularly, at two-minute intervals, the four-passenger cars went away in as imposing a manner as any collection of racers in an international pure speed test. Each car, after being filled with gasoline, was dragged to the line by a horse, and the motor cranked at the last possible moment, gasoline being a precious fluid with such an extremely limited allowance.

All in white, with the arms of the firm painted on the side panels, the De Dion Bouton team attracted particular attention. Zèlèlè especially being pointed out. Zèlèlè is one of the sights of Paris. On working days he drives the Marquis de Dion's limousine around the city. Zèlèlè's companion on the front seat is a handsome Pomeranian, white from the tip of its nose to the wag of its tail; Zèlèlè's color being, as everybody knows, as coppery as Abyssinia can produce, the combination was declared *tout à fait chic*, and Pomeranians on the front seat are now the fashion.

Sorel's Lorraine-Dietrich was looked upon as one of the most probable winners. Sorel, an Anglo-Indian, is one of the most capable drivers Europe possesses, and his machine, a standard model, has been more carefully prepared for the race than the majority. The two Westinghouses, built at Havre, but with just a tinge of American blood in them, made excellent starts. Mercedes was the only out-and-out foreigner, the others from abroad having fallen during the preliminary tour.

Sorel, driving a Dietrich, was the fastest on the initial round, followed at an interval of two minutes by Renaux on a Peugeot, and one minute later by Vrignon on a De Dion Bouton. Another Peugeot was fourth and two De Dion Bouton's fifth and sixth. At the end of the third round Sorel was still leading, with Peugeot a good second and the complete De Dion team hanging very close. Excluding accidents the De Dietrich machine seems a certain winner, for it was decidedly the fastest of the lot and was admirably handled. There was a doubt, however, as to the ability of the big four-cylinder motor with 5.1 by 6.2 bore and stroke to



ARIES DRILLED THE FRAME AND FITTED A WIND DEFLECTOR.

remain within its fuel allowance. The Peugeot dimensions were 5.1 by 4.7 bore and stroke and the De Dion engines were 4.3 by 5.9 bore and stroke.

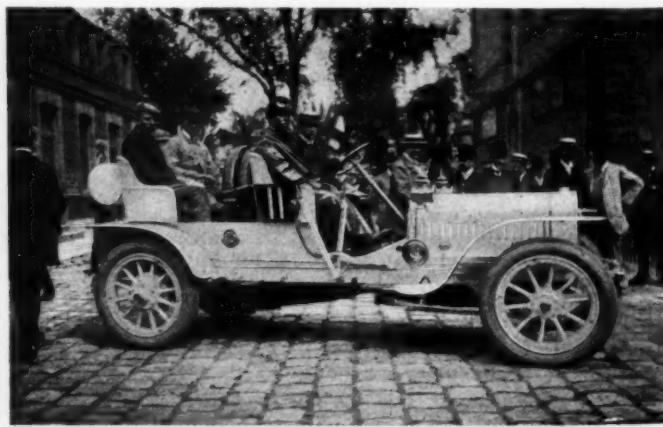
How Some Were Eliminated by Accidents.

On the fourth round Perret's Peugeot took a dip in the road at too high a speed and broke a front spring hanger; the Mercedes driven by Gasteaux, with Madame Gasteaux as one of the passengers, broke a ball bearing and had to retire; a Cottin-Desgouttes broke an axle and the M. G. R. and the Vinot-Deguingand had to lay up on the roadside. Sorel and Renaux, handling Dietrich and Peugeot respectively, continued to lead and appeared likely to obtain first and second positions. Debray's closed C. G. V., with its full load of passengers, continued in the rear with an even speed of thirty-seven miles an hour.

About 2:30 o'clock Vimont on a Westinghouse crossed the finishing line. He had started eighth and consequently should be in a good position. One of the Gladiators came in close behind, with Zèlèlè, the Marquis de Dion's private chauffeur, who had driven too cautiously on a guarded road, hard on his heels. But Sorel's Dietrich was the machine looked for by every spectator, its previous lead having marked it out as a certain winner. From the telephone station the sorrowful message came that the powerful Dietrich was laid up on the roadside with every drop of gasoline drained out of its tank. Renaux, whose Peugeot had not stopped once for tires—he used Continentals—or any other cause, went over the line in 4:32:56, winner of the Coupe de la Presse. Less than four minutes behind, Vimont's Westinghouse took second place and De Dion Bouton captured third and fourth. The third De Dion, while in a good position, ran out of gasoline and had to be pushed over the line. Cottin & Desgouttes, finishing fifth and ninth, obtained the gold medal for the lowest fuel consumption. One of the most pleasing features of the race was



C. G. V. INSIDE STEERING LIMOUSINE, WHICH TOURED AND RACED.



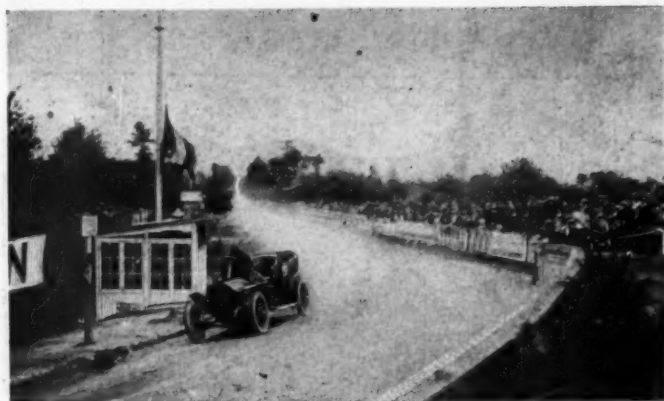
MARQUIS DE DION'S OWN CAR AND COLORED CHAUFFEUR.

the excellent work done by tires; in addition to the winner, several machines covered the 244 miles without changing a single shoe. Dismountable rims, Vinet and Michelin, were used on every machine, and Bosch magnetos were found on twelve of the eighteen finishers.

An Excellent Race, but Might Have Been Better.

Critics are not altogether satisfied with the speed realized by the machines with their allowance of one gallon of gasoline for approximately 15.3 miles. Compared with the Berliet record from Biarritz to Paris, and the performance of Rolls in the Tourist Trophy, there has not been much progress. Probably owing to the late appearance of the regulations, constructors had not thoroughly worked out the problem of obtaining the highest speed with the least amount of gasoline under touring conditions. All the machines were in good racing trim and handled by experienced drivers, but did not seem to have received the attention they ought to have had on fuel supply. Horsepower varied from 28 to 45; or, to get a more accurate estimate, for horsepower is often a matter of geography, bore and stroke was 4.3 by 5.1 on the smallest cars and 5.2 by 6.2 on the most powerful engines.

The regulations made it impossible for freak machines or specially constructed racers to compete. Although wire wheels sometimes took the place of wooden ones, and tricks were played with mud guards, the machines had to keep closely to touring conditions. Most important of all, they had to be geared for the



VICTORIOUS PEUGEOT CROSSING THE LINE.

contest on the Dieppe circuit. Over 2,000 troops guarded the course, barriers were erected each side of the road for the entire distance, and bridges put up wherever the population was of such importance as to need it. Though rather narrower than the majority of French roads, the Lisieux circuit has uniformly good surfaces, and was so carefully oiled and prepared that it formed an ideal track. It was at the grand stands that the work of the organizers was seen to the best advantage. Instead of placing



A SCENE AT THE STARTING LINE. ELEGANTLY DECORATED GRANDSTAND AT BEND OF ROAD ON LEFT; TIMER'S BOX ON RIGHT.

race in the manner which they competed in the touring event over mountain districts. For the first time in a touring race dismountable rims were used exclusively and gave no trouble. Continentals equipped the winner, the third, fourth, eighth, tenth, twelfth and fourteenth machines. Michelin's place was on the second and fifth cars to reach the grandstand.

THE FINISH AND THE SPEED.

Car and Driver	Time	Speed per hour
1. Peugeot, Renaux	4:32:56	53.7
2. Westinghouse, Vimont	4:36:05	53.03
3. De Dion Bouton, Zélélé	4:44:46	51.3
4. De Dion Bouton, Vrignon	4:48:40	50.6
5. Cottin & Desgouttes, Cottin	4:53:13	49.9
6. Westinghouse, Burkhard	4:53:53	49.5
7. Gladiator, Molon	4:57:12	49.4
8. Eugène Brillié, Hérissé	4:59:28	48.9
9. Cottin & Desgouttes, Latune	5:04:06	48.1
10. Gobron, Dureste	5:06:07	47.8
11. Gladiator, Vonlatum	5:06:07	47.8
12. Ariès, Vallée	5:17:00	46.1
13. De Dion Bouton, De Marçay	5:23:24	45.2
14. Motobloc, Barriaux	5:27:27	44.7
15. Peugeot, Perret	5:52:05	41.5

Also finished: Rebours, Riviere; C. G. V., Debray; and Gillet-Forest, Nemo.

Organization the Most Perfect Europe Has Ever Seen.

Nothing but praise is heard for the manner in which the race over the Lisieux circuit was conducted. The Grand Prix, marvelously organized, captivated strangers by the manner in which the race was planned and attention paid to details. But the event just over was, in the opinion of all, far in excess of the

stands on a straight stretch of road, they were erected on a slight bend, thus giving spectators an opportunity of seeing the work of the drivers under the most interesting conditions. To enhance their speed, the road was banked at this point; thus the cars were visible several miles down the road, could be seen taking an elongated S turn, watched closely on the grand stand turn and seen as they disappeared a couple of miles in the distance, there being no dust to obscure the view.

A complete town of wooden "villas," as they were immediately

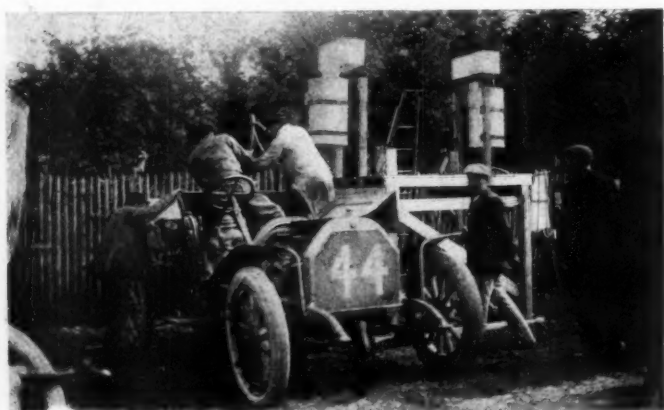


ZÉLÉLÉ ON DE DION BOUTON FINISHING THIRD.



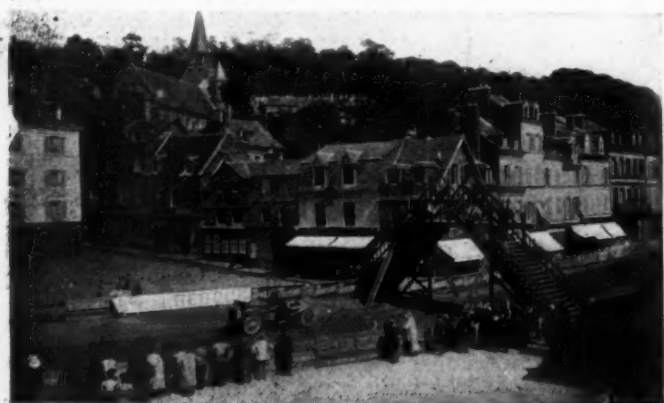
THE MODERN AUTO IN OLD-WORLD NORMAN TOWN.

dubbed, was erected to the rear of the grand stands. The Sporting Commission had a "château," the A. C. F. committee possessed its "castle," the telegraph and the general secretary were each accommodated with a handsomely decorated "villa," and the timer was given an elegant glass-and-wood house on the starting line which would not have dishonored the grounds of a millionaire. Instead of a shed from which no view of the course could be obtained, the press had for its special use a well-con-



FILLING WITH GASOLINE FROM SPECIAL MEASURING TANK.

structed tower, fifty feet from the ground, where it was possible to see everything and send messages without making 100-yard sprints. Finally, the restaurant was a place to eat in, and a place where people really did eat with pleasure. Gustave Rives, the master hand of the Paris automobile salon, had charge of the decorations around the stands. As an example of the manner in which he performed his task, it is only necessary to mention one detail. On the barricades were, as usual, advertisements for so



STOUT BARRIERS AND BRIDGES MADE THE RACE SAFE FOR ALL.

and so's tires and oils; these had to be of an approved color to harmonize, and when there were no more advertisements the bareness of the boards was hidden by an artistic wall paper, giving a panel effect. Cushioned seats, draped walls, artistically painted stands, were all in evidence; but, most important of all, the stands and other buildings had been designed first for use, then decorated. On some previous occasions the stands were made to fit the decorations.

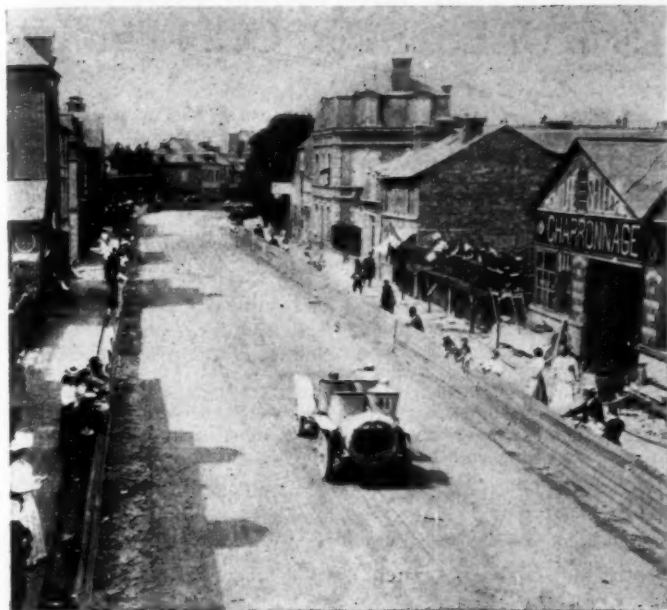
Progress had been made also in handling the score. From the timers' box, placed on the finishing line, it was but a step to a large, clearly visible score board, on which elapsed times only were posted—not clock times, as formerly. Filling the cars with gasoline was but a repetition of the Grand Prix. Two measuring tanks built to make allowance for changes in temperature were mounted on a platform, filled with the requisite amount of fuel, and their contents emptied into the tank of each competitor, the whole operation occupying less time than the filling of the average gasoline tank in a garage. When filled the inlet cap was sealed down and the various seals imposed at Paris finally verified.

How the Tour Met with Disaster.

Starting from Paris, after being weighed in and having their tanks and gear cases sealed at the military station on the Quai d'Orsay, the forty-four competitors in the Criterium de France and Coupe de Presse made the 270-mile run to Clermont-Ferrand, in Auvergne, at an average of 24.8 miles an hour. Although traffic and pavé around Paris made speed impossible for the first few miles—the start was given in the city itself—and a respectable share of hills were met during the latter half of the journey, every machine reached control on time. Many of them, indeed, arrived from one to two hours ahead of schedule. No half-way control had been arranged, but so fast was the rate of travel that it was considered necessary to hold up the competitors at Nevers. One well known make of machine covered the entire distance at 50 miles an hour, while half a dozen others exceeded an average of 45 miles an hour.

From Quatre-Routes, a corner of the Gordon Bennett Auvergne circuit, the second day's tour was to Bordeaux, 224 miles away, on a schedule calling for 21.7 miles an hour. Being through a mountainous country, greater caution was needed and a lower average speed was asked for. This, however, did not prevent the competitors from speeding, and most of them set up an average which would have carried them into the wine city far ahead of schedule. About twenty miles from Bordeaux the rear of No. 31 Martini suddenly collapsed while traveling at a moderate speed on a straight, level road. M. Meurisse, THE AUTOMOBILE photographer in France, who occupied a seat in the tonneau, was thrown into a field and slightly bruised. His companion, M. Luquin, a photographer from *La Vie au Grand Air*, was thrown in another direction, struck a telegraph post, and was killed on the spot.

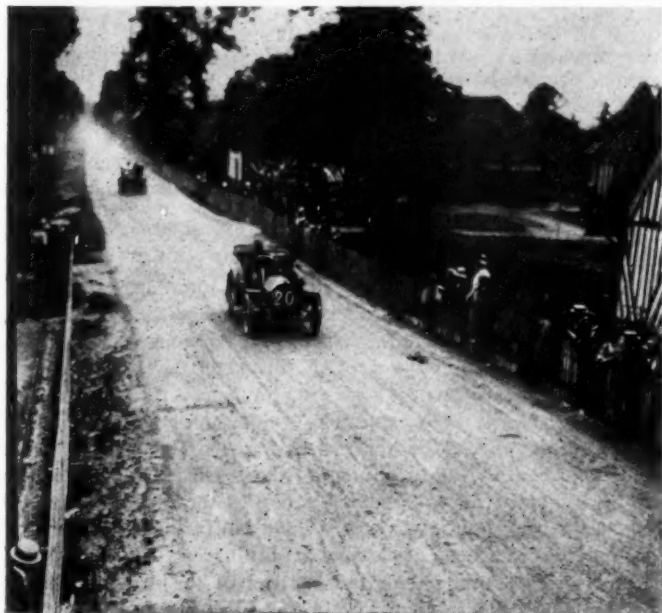
On the news reaching Bordeaux, M. Roullier set out on a Peugeot car with a number of newspaper men to obtain details of the accident. Traveling at nearly forty miles an hour, Roullier passed a horse-drawn vehicle in a cloud of dust raised by some of the competitors, and was about to pull into the right hand side of the road when he entered into collision with No. 35 Martin & Lethimonnier, driven by Henry Paul Martin, at a speed of over forty miles an hour. According to spectators, no blame could be attached to the competing car, which, although traveling fast, was as far to the right hand side of the road as possible. Those killed were Martin, the driver of the competing car, reported to be connected with the Sultan Motor Company, of Springfield, U. S. A., Faveau, who was by his side, and Villemain, sitting with his feet on the running board. Villemain was well known as a racing driver, first with Darracq, later with Bayard-Clement. For a long time he formed one of the team of which the late Albert Clement was the chief. In the non-competing car Roullier, the driver and two newspaper men met their death. On receiving instructions from the Government, the Automobile



NO STRAYING DOGS OR BOYS IN THIS VILLAGE.

Club of France ordered the tour to be stopped, and directed the cars which had accomplished the first two stages successfully to proceed to Trouville in readiness for the race on the guarded circuit.

This accident has caused a revulsion of feeling against touring competitions on unprotected roads, for, although precautions are taken to prevent speeding, it is impossible to keep inconsiderate drivers under control on such occasions. It has been shown, on the other hand, that speed contests on guarded roads are thoroughly safe, no serious accident having occurred during any of the races in France this year. The public is now more favorably inclined towards the Marquis de Dion's scheme for the construction of a natural autodrome in some mountainous part of Auvergne, where any speed or touring test could be held with little danger to competitors or spectators. His suggestions to that effect did not meet with a very enthusiastic reception from either the automobile club or the race-going public at the outset for many reasons, but the accident has been the means of causing an entirely different view of his proposals in those quarters.



THROUGH BARRICADED PONT L'EVEQUE, OF CHEESE FAME.



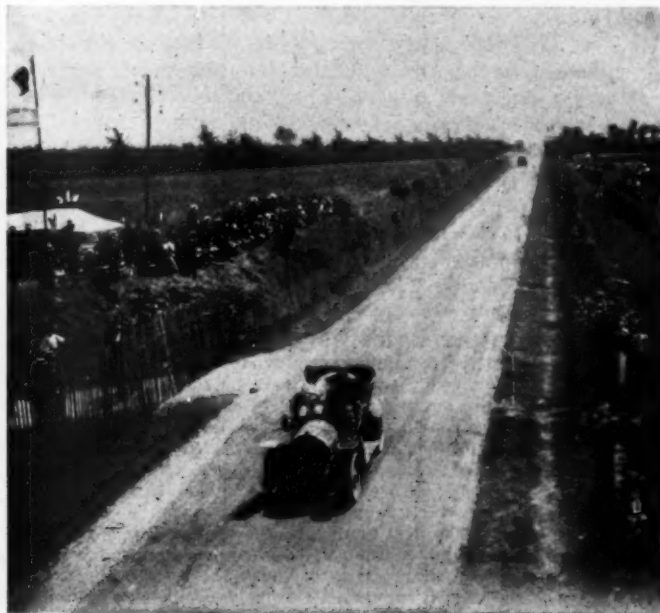
ZÈLÉLÉ, THIRD, IN HIS FIRST SPEED EVENT.

ANOTHER LONG ISLAND MOTORWAY.

From Highland Park, a suburb of Brooklyn, to Massapequa, L. I., runs a water conduit on land owned by the City of New York. At the last meeting of the Board of Aldermen, before its summer adjournment, a resolution was passed, favoring the building of an automobile speedway on the top of this water conduit, and the matter was referred to a committee of three, consisting of Controller Metz, Water Commissioner O'Brien and Nelson P. Lewis, an engineer of the Board of Estimate.

It is understood that the plan has been investigated and found entirely feasible, and Commissioner O'Brien and Engineer Lewis will so report to Controller Metz on his return from Europe.

The conduit parallels the Long Island Railroad and the well known Merrimac road, passing through various Long Island towns where speed ordinances have been strictly in force. It is asserted that by another summer the motorway will be an actuality. Alex. Schwalbach, of the Long Island Automobile Club, has been an energetic factor in the preliminary work on the proposed motorway, and is enthusiastically working for it.



FINE SWEEP OF ROAD NEAR FINISHING LINE.

IMPORTERS' SALON SUGGESTS RULES FOR CONTESTS

THROUGH its Trades and Contests Committees, appointed in June last, the Importers' Automobile Salon has forwarded its report to the Association of Licensed Automobile Manufacturers, the American Motor Car Manufacturers' Association and the Automobile Club of America. While the report also goes to the Salon itself, it is taken for granted that since its committee contains the leading importers, it will be acceptable to the entire membership.

In submitting the report the Trades and Contests Committee states "that it desires to place the sport on a higher plane to the benefit of the interested public, and to the individual importer and dealer in automobiles, whose sole intention in entering their cars is to have them judged entirely upon their merits."

The committee assumes that the majority of past tours, runs, races and contests have not been based on the proper grounds or foundation to bring out the best results, stating:

"The reason of this is clearly that no organized automobile body whose experience is complete mechanically and otherwise has offered to assist or aid by suggestion or advice, or to stand sponsors for, the mechanical correctness and merit of the event in which members' cars compete. The entire responsibility of the officiating association or clubs being to-day limited to the mere question of whether the date conflicted with that of any other meet already sanctioned."

The committee believes that its recommendations will be "quickly recognized by other organizations and clubs as an opportunity for the co-operation of all interested parties to effect the elimination of the admittedly undesirable and eventually costly element in competition and to inaugurate a new basis of operating and conducting contests. In these contests, selecting the most approved methods and mechanically conceded formulas for awarding prizes, that every prize awarded may actually mean some particularly desirable feature proved by the winner, which the public, the manufacturer, clubs and associations can readily recognize. In fact, work out a real standard for determining perfection."

Horsepower Suggested as Basis of Classification.

Probably the most noticeable fact about the recommendations urging a uniform basis of classification for cars in tours, races and hill climbs is to be found in a return to old and well-known standards of engine rating, the classic horsepower formula used in rating steam engines for almost a century past having been adopted with the necessary modification to make it apply to the gasoline engine. This is the addition of "x 2" in the denominator, in order to compensate for the fact that the four-cycle engine does not generate an impulse per turn, per cylinder.

It will also be noticed that, pending the taking of general action by a national or international committee as suggested, it is recommended that cars be classified solely according to their horsepower, seven classes being provided, ranging from "under 10 horsepower" to "60 horsepower and over," and being based upon a table of horsepower prepared by Worby Beaumont, published in the *Automobile Club Journal*, London, and *THE AUTOMOBILE*, August 2, 1906.

THE RECOMMENDATIONS OF THE COMMITTEE.

First—Your committee formally recommends the discouragement of events exclusively for either foreign cars or for American cars as not tending to bring out the comparative merits of the two, nor fair to either one or to the public, and recommends that such events be not supported by entries of any imported cars.

Second—That the judges, committees, or other officials directly in charge of all contests, and especially such committees as formulate the basis upon which such events shall be run, be selected from automobile or mechanical engineers whose standing is recognized by the industry and community, and whose knowledge and interest in the welfare and progress of the industry will be paramount. That such judges, committees or bodies in charge should include representatives of recognized repute from each and all of the prominent associations known to have the interest of the indus-

try at heart. These, in the mind of your committee, would be representatives of the Association of Licensed Automobile Manufacturers, the American Motor Car Manufacturers' Association, the Automobile Club of America and the Importers' Automobile Salon.

Third—That each of these associations appoint from their membership a Trades and Contests Committee, similar to our own; that a representative of each of these committees, conveying the opinions and ideas of their representative committees, jointly revise the merit of determining basis or standards which are in use to-day, and which are recognized as sometimes partial, discriminating and unreliable.

Fourth—Until such a desirable state of affairs can be brought about your committee recommends as the most fair, the most complete scientific and generally recognized foundation of all merit, the true horsepower classification, and that, pending further national or international action in the matter, the generally conceded fair average horsepower formula adopted by the Royal Automobile Club of Great Britain and Ireland for determining horsepower for contest purposes be accepted by the importers in classifying for the purpose of same, and further until the aforementioned and hoped for nationally and internationally "accepted basis" becomes a fact, the following classification be urged by importers for use in such contests and by such associations as will use them:

Class A, beginning with 60 h.p. and over.

Class B, beginning with 50 h.p. to, but not including 60 h.p.

Class C, beginning with 40 h.p. to, but not including 50 h.p.

Class D, beginning with 30 h.p. to, but not including 40 h.p.

Class E, beginning with 20 h.p. to, but not including 30 h.p.

Class F, beginning with 10 h.p. to, but not including 20 h.p.

Class G, under 10 h.p.

[Based upon a table of horsepower, prepared by Mr. Worby Beaumont, published in the "Automobile Club Journal," London, and "The Automobile," New York, August 2, 1906.]

Committee Asks That Criticisms Be Made.

Accompanying the report is the following letter wherein the Trades and Contests Committee asks to have its plans criticised: Dear Sirs:—

The Importers' Automobile Salon, representing practically all of the importers doing business in this country at present, believes that the time has come when steps should be taken by those directly interested, manufacturers, clubs and associations, to preserve the high standing of the automobile industry in the eyes of the public, especially with reference to the sporting, touring and contesting branches of such industry.

Therefore, the Trades and Contests Committee of the Salon takes the liberty of handing you herewith a brief outline or suggestion showing one way in which at least a start may be made to that end, and which it is hoped will result in at least starting forth a co-operative movement between all interested organizations to advance the sport of automobilism along mechanically correct lines, which will prove as beneficial to the industry, as it surely will be satisfactory to the automobile-loving public.

The Committee would like very much to have this plan criticised or a new one advocated that will bring about the desired results, and is in hopes that similar committees will be able to devise means of arriving at some satisfactory basis for the betterment of the cause.

Very truly yours,

TRADES AND CONTESTS COMMITTEE,

Percy Owen, Paul La Croix,

Gaston Rheims, Geo. MacWilliams,

C. R. Mabley, Secretary.

Considerable surprise has been expressed at the leaving out of the American Automobile Association, the present governing body, from the list of organizations supplied with the recommendations of the Importers' Committee. In view of the fact that the Racing Board of the A. A. A. has conducted the Vanderbilt Cup race for the past three years in a most thorough and satisfactory manner, and according to international conditions, and the Touring Board this year endeavored by every means in its power to consult the manufacturers and utilized a consensus of their opinion in formulating the rules for the annual Glidden tour, the ignoring of the governing body is considered by many as not only discourteous but detrimental to the results aimed at by the Importers. "Pulling the chestnuts out of the fire for other people," is the way one man, well known in the trade and sport, explained the puzzling situation.

INTERPRETATION OF THE 1907 CONNECTICUT LAW

By E. F. HALLEN, COUNSEL FOR THE AUTOMOBILE CLUB OF BRIDGEPORT.

THE new automobile law recently passed by the general assembly and signed by the governor differs radically from the automobile law hitherto in force in this State. For this reason it is deemed wise and expedient to explain to the members of the Automobile Club of Bridgeport and to other interested persons the principal provisions of the new law, and to point out wherein it differs essentially from the law previously in force.

At the beginning of the legislative session considerable antagonism was manifested against further favorable automobile legislation, but a vigorous educational campaign, waged during the entire session, has been splendidly effective in bringing the legislature to a realizing sense of the need and importance of the automobile as a great factor in our growth and progress.

Under the new law additional burdens are placed on automobilists, notably in the increased cost of registration of machines, in the obligation to obtain an operator's license—this is a new feature—and in the cost of such license. These burdens are offset by the practical removal of the speed limit, and by the application of all registration and license fees, fines and penalties by the State for the maintenance and repair of improved roads.

Speed Limit Removed.

Perhaps the most important feature of the new law is that the present arbitrary speed limit of twelve miles an hour within any city or borough and twenty miles an hour outside the limits of any city or borough has been removed. The rich and easy graft of many of the constables and of some other town officials should be a thing of the past. The new law provides that "no person shall operate a motor vehicle on the public highways of this State recklessly or at a rate of speed greater than is reasonable and proper, having regard to the width, traffic and use of the highway, or so as to endanger property or the life or limb of any person." This holds the driver in every instance to a strict measure of responsibility, and leaves decision as to the propriety of the operator's action entirely to the court with right of appeal in all cases.

It is provided, however, in the new law that a rate of speed of over twenty-five miles an hour for the distance of one-eighth of a mile shall be prima facie evidence of reckless driving, which means that when apprehended for operating at a rate of speed in excess of twenty-five miles an hour the burden is on the operator and not on the prosecutor to prove to the court or other tribunal that, considering all the circumstances of the case, he was not operating the car at a rate of speed greater than was reasonable and proper. If, on the other hand, one is apprehended when operating a car at a rate of speed less than twenty-five miles an hour, the burden is on the prosecutor instead of on the operator to prove that, considering all the circumstances of the case, the car was operated at a rate of speed greater than was reasonable and proper.

The "Reasonable and Proper" Feature.

It is important, and should be borne in mind, whatever the rate of speed, whether two miles an hour or fifty miles an hour, if the driver is operating the car at a rate of speed that is reasonable and proper, considering all the circumstances in the case, that there is no violation of law; that no penalty of any kind should attach, and that there is a right to appeal in all cases.

It is earnestly hoped that all automobilists will assist in upholding the spirit of the new law, and that all unwarranted arrests made to satisfy the greed of some town officials, in a few isolated localities, will be met by prompt appeal to a higher tribunal, even if it means some personal inconvenience to the automobilist.

On the other hand, all cases of reckless driving should be frowned upon by your organization. The penalties under the new

law are very severe, and your club should lend its valuable aid to seeing that all reckless offenders get their deserts.

The operator who is a reckless dare-devil should receive no sympathy, since it is he who often brings a large and worthy class into undeserved disrepute. He can be squelched quickly and effectively under the stringent provisions of the new law.

Operator's License.

A radical departure in the new law, and one which is intended to enforce careful driving, is the operator's or chauffeur's license. This license can be issued to no person under eighteen years of age, and must be obtained yearly from the Secretary of State at a cost of \$2 per year. Unlicensed persons may operate a car only when accompanied by a licensed driver, and then such driver will also be liable for any improper operation of the car.

The Secretary of State or deputy secretary may, after due hearing and subject to appeal, revoke any operator's license for any cause which he deems sufficient, and he must revoke it upon a third conviction within the same calendar year for any violation of the act. No revoked license can be renewed within three months, and then only in the discretion of the Secretary of State.

Non-Residents.

A non-resident, if he has complied with the automobile laws in his own State, may operate his car in this State for a period of not over ten successive days at any one time without registering his car or taking out a license. A marker of his home State must be shown, but no machine can carry over two markers in front or two markers in rear at any one time.

Registration.

The new law provides for the registration of automobiles on a very different scale. Under the old law the registration fee was \$1, and the same fee was charged for renewal. The new law makes the registration fee \$3 for registration of cars of less than 20 horsepower; \$5 for cars of 20 horsepower and less than 30 horsepower, and \$10 for cars of 30 horsepower and higher. The registration fee for a dealer covering all his cars is \$10, and the registration fee for a manufacturer is \$100. All renewals must be annual.

Markers and Lights.

The Secretary of State will continue to issue markers for machines registered with him, and the provision is continued in the new law that the letters or figures shall not be less than four inches high and each stroke thereof not less than one-half inch wide. Markers must continue to be carried both front and rear, and in addition the rear lamp showing a red light from the rear and white light at the side must be so arranged as to illuminate the rear number. In the night season one or more white lights shall be displayed on the forward part of the machine.

Every owner who has complied with the old law and who shall register under the new law prior to September 1, 1907, may retain the same registration number and may use his old plates or markers having such registration number thereon.

The new law goes into effect August 26, 1907.

I am informed by the Secretary of State that he will send out in the very near future blanks and circular letters to every automobile owner registered under the old law, giving necessary information for registering machines and obtaining operator's license. He will also enclose in pamphlet form a copy of the new automobile law.

It is very important that these blanks should be properly filled out and promptly forwarded to the Secretary of State. If filed with the Secretary of State before September 1, 1907, the owner

can positively retain his old number and use his old markers. If filed later than September 1, 1907, it is a matter of choice with the Secretary of State, and if someone else secures his registration number there is no redress.

Principal Requirements Under Law.

The certificate of registration which will be furnished by the Secretary of State must be at all times carried upon the automobile, and shall be subject to examination upon demand by any proper officer.

Every automobile while being used or operated shall have displayed in a conspicuous manner, entirely unobscured and securely fastened, a plate or marker on both front or rear. The rear marker must be fastened so as not to swing.

The Secretary of State must furnish all plates or markers at cost price.

An operator's license must be obtained from the Secretary of State. This license will cost \$2 and will continue in force for one year from date of issue unless sooner suspended or revoked for cause.

The operator's license must at all times be carried by the licensee when he is operating an automobile and shall be subject to examination on demand by any proper officer.

The operator must stop his automobile immediately and must also stop his motor or engine immediately if horse or other draft animal shall appear to be frightened or any person in charge shall signal to stop. If traveling in opposite direction, automobile must remain stationary so long as may be reasonable to allow such horse or draft animal to pass; or if traveling in the same direction, the operator shall use reasonable caution in thereafter passing such horse or other draft animal.

No person shall operate an automobile when intoxicated or in a race or on a bet or wager.

Every automobile shall be provided with adequate brakes and with a suitable bell, horn or other signaling device.

During period one hour after sunset to one hour before sunrise must display one or more white lights on forward part of automobile, so placed as to be seen from the front at a distance of two hundred feet.

The rear light must illuminate the rear marker.

If arrested, may tender automobile as bail, and if of sufficient value must be accepted.

Fees under the new law are as follows:

Registering car less than 20 horsepower, \$3.

Registering car 20 horsepower, less than 30 horsepower, \$5.

Registering car 30 horsepower and higher, \$10.

Each dealer's certificate of registration, \$10.

Each manufacturer's certificate of registration, \$100.

For each operator's license, \$2.

The new law will soon go into effect, *viz.*, August 26, 1907, and it is important to comply with its provisions.

Some town officials, smarting under the loss of revenue occasioned by the passage of this law, may be on the alert to apprehend well meaning automobilists before they are acquainted with the provisions of the new law and before they are aware that the new law has gone into effect.

TEXAS AUTO LAW SOMEWHAT FAULTY.

FORT WORTH, TEX., Aug. 17.—Omission of the word "sundown" in the new State automobile law has caused considerable confusion in regard to lights on cars, as, according to the wording of the law, cars have to carry lights all day as well as night. The new State law requires, according to the wording of the certified copies, that lights on the front and rear of the car shall be lighted from "one hour after until one hour before sunrise," thus leaving only two hours in the day when it shall be legal for machines to go without lights.

Had the word "sundown" been placed in the law as evidently intended, it would have been in uniformity with laws in other

States and read "from one hour after sundown until one hour before sunrise."

Another fault which has been found with the law is that the license number which is required does not show whether it is a State license or what it is. In a number of cities a city number is also required, no specification being made except that the number shall be on both front and rear of the machine and be six inches in height. The State specifications are the same, so that it is impossible to tell which is the city and which the State number. A Fort Worth automobilist created considerable surprise when he started out with the machine numbered "5376." It developed later that he had put his city number "76" next to the State number "53," and as both were made of the same material it looked as though there were 5,376 autos in Fort Worth.

The new law makes 18 miles an hour the maximum speed limit in the country and leaves the city to make their own limit. So far there have been no arrests reported either for exceeding the speed limit or for running without a license number.

TIMELY EDITORIAL BY THE BROOKLYN EAGLE.

"For the automobilist who runs amuck anywhere and everywhere no extenuating word can be said—the sooner he is included among the vanishing types the better. However, this statement can be applied to others. The vanishing type should include the village authorities who are crusaders for revenue rather than regulation. They see things through a glass darkly. They see an immediate contribution in the shape of a fine, but they lose sight of the larger returns accruing when the automobilist is driven off by a species of petty blackmail. Quite a crop of little industries diversifies the path of the car, and it supplements resources accordingly. Also, the resources diminish accordingly when the village autocrat has less regard for the speed limit than he has for a chance to victimize invaders. Then there are justices, so called, who make annoyance and inconvenience preliminary to a maximum fine, deferring action that could be taken at once, and compelling attendance, which is more of a response to caprice than to any of the real necessities of the case. This sort of thing may not be as reprehensible as the chauffeur who runs amuck, but it is altogether indefensible and gratuitous. Wherever it is done—or attempted—the right man is not in the right place. One nuisance is a poor substitute for another, to say nothing of other considerations. Automobilists usually have money and few of them try to drive sharp bargains. It is poor policy to repel them by petty plundering and otherwise."

TESTIMONIAL DINNER TO TOM MOORE.

Though he signs himself T. Francis Moore, everybody calls him "Tom" Moore, and his resignation as publicity manager from the staff of Wyckoff, Church & Partridge, the well-known New York City agents of the Stearns, was recognized by a farewell dinner at the Cafe des Beaux Arts, Sixth avenue and Fortieth street, Tuesday evening last. Two scores of well-known figures in the automobile world, including A. W. Church and E. S. Partridge, did honor to the guest of the evening, who received a gold watch and fob as a combination testimonial from the company and his friends present. Of course, there were speeches and also all sorts of things said about the guest of the evening, who has plans of a national character for the near future.

Those present included Duncan Curry, J. H. Gerrie, E. E. Schwarzkopf, L. D. Rockwell, H. T. Clinton, R. G. Kelsey, J. E. Demar, A. N. Jervis, F. E. Spooner, L. R. Smith, W. I. Fickling, W. W. Burke, Harry Burchell, W. H. Horner, James J. Joyce, R. B. Johnston, R. H. Johnston, Fred J. Wagner, Charles J. Dieges, R. W. Howell, N. Lazarnick and Peter Fogarty.

Nothing has proved more deceptive, where registration figures are concerned, than the working of the New Jersey law, and the same thing is naturally true of the laws of a similar tenor enforced in Pennsylvania. New Jersey probably has 10,000 resident autoists, but the registration figures credit it with 30,000.

KNOCKING IN MOTORS: ITS CAUSE AND EFFECT

FROM THE RAMBLER MAGAZINE.

FEW are the drivers of an automobile who have not at some time had experience with what is commonly termed knocking or pounding in the motor. While this is a common occurrence, comparatively few are aware what actually takes place, its cause or probable effect.

When an engine runs irregularly from over-load it is said to labor, and when this condition increases a sharp, metallic sound is heard, like pounding on metal. This is termed the knock. The lesser the number of cylinders, the more liable is this knocking to occur and the more readily will it be felt in the running of the car.

As is well known, the torque or twisting strain on the crankshaft of an internal-combustion motor varies with the several cycles of action.

In the single-cylinder engine we may take first the suction stroke, during which, if the motor is properly constructed in valve dimensions, etc., there should be no load or resistance to the momentum stored in the flywheel. On the succeeding compression stroke there is a rapidly increasing resistance as the compression rises within the cylinder; hence, as the crank passes the center at the end of the suction stroke, the flywheel speed will be reduced to its lowest point.

Immediately following ignition occurs, and when the power stroke begins there is a tendency toward a rapid increase in speed in the flywheel. At the end of the power stroke the exhaust valves are opened, and here again, if the valves are of proper dimension and the muffler does not exert back-pressure, there should be practically no resistance to the momentum of the flywheel.

It will thus be readily seen that the purpose of the flywheel is to regulate speed in rotation of the crankshaft, and to smooth out and overcome the tendency toward varying speeds, and the effective action of the flywheel will be entirely dependent upon its weight and dimensions.

Taking a flywheel of proper design for the engine on which it is used, the variation in speed of rotation should be reduced to a point practically indiscernible. However, under certain adverse conditions the flywheel fails to be adequate and the variation in speed will be readily noticeable.

Premature Ignition a First Cause of Trouble.

One of the first causes for this extreme variation is premature ignition. When this occurs, either through overheating of the engine or too great an advance in the spark, the early ignition causes a quick rise in pressure before the crank passes the center, and the tendency is, therefore, to drive the crank and flywheel backwardly. In fact, as the motor is slowed down by overload, it will very often occur that the flywheel will stop its forward action entirely and run backwardly. This often occurs when a motor is stopped, after continuous running and in heated condition, by cutting off the spark but not entirely closing the throttle. Under this condition the motor's speed slackens until finally the momentum of the flywheel becomes so slight that when ignition occurs prematurely, through heat of the cylinder or a red-hot carbon deposit, the pressure thus prematurely exerted overcomes this momentum and the flywheel will run backwards, sometimes several revolutions.

The most prevalent cause of knocking is improper use of the spark.

Inexperienced operators, and many whose experience is sufficient that it should teach them better, leave the spark advanced when running their car under adverse conditions, such as climbing steep grades or negotiating heavy roads.

The idea in advancing the time of ignition is to so effect firing of the compressed charge that it will be entirely ignited, and the pressure thus rises to its highest point at the instant the crank

crosses the center line. This requires a measurable length of time, which is not dependent on the speed of the motor. Therefore, if the motor be traveling at, say, one thousand revolutions per minute, and the spark is advanced sufficiently far that ignition becomes complete on crossing the center, it will readily be seen that if the spark occurs at the same point in relation to the crank travel with the motor running at, say, five hundred revolutions per minute, the pressure will rise to its maximum point before the crank crosses the center, and will thus be exerted in a backward direction. Consequently, when, through excessive load, the motor speed is reduced without the spark being at the same time proportionately retarded, this condition of preignition is bound to occur. The result is not only the consequent reduction of power, but exerts strains on the motor and the entire mechanism many times in excess of the normal stress of regular service.

Excessive Strain an Effect of Premature Ignition.

The knock before mentioned does not occur until the laboring becomes excessive, and its cause may be readily explained by taking the example of suspending a piece of metal of considerable weight in the air. Thus suspended, strike this a quick blow with a heavy hammer. The metal will swing away from the impact with little or no visible effect. Then take the same piece of metal, securing it against movement, and strike the same blow. The effect will be immediately noticeable, and may result, and probably will, if not the first time, upon repetition of these blows, in bending or breakage.

When the motor is running at reasonable speed and ignition occurs at the proper time, the effect of the sudden rise in pressure on the piston-head is practically the same as that of the blow of the hammer on the suspended weight, and the flywheel traveling with considerable momentum, the pressure is allowed to exert itself gradually on the outwardly moving piston and the wear and strain on the motor is comparatively slight.

Now if, on the other hand, the explosion occurs with the crank practically stationary on the dead center or, as is still worse, with the piston traveling upwardly on the compression stroke, the effect is the same as when the hammer blow was delivered to the immovable mass of metal. The resultant condition is somewhat like the statement of the Yankee who, when asked the old-time question of "What would occur should an irresistible force strike an absolutely immovable mass," scratched his head for a moment and remarked that he did not have time to figure it out, but he reckoned there would be splinters somewhere. If splinters do not occur immediately in the form of a broken crankshaft or bent or broken connecting rod, the damage is bound to exist, though possibly not immediately visible.

Fatigue of Metals Under Violent Stresses.

There is a prevailing expression that metals become fatigued, and it is under such sudden, violent stresses as this that metal-fatigue is caused, and, like the tired man, the fatigue eventually reaches the point of breakdown.

Another disastrous effect lies in the great increase of temperature under these conditions. Temperature of a burning gasoline vapor, at the pressure usually existing in well-constructed motors, runs to 3,000 degrees Fahrenheit and upward. The melting point of the metals of which the cylinders and pistons are constructed is below this point, and if this temperature is maintained for any length of time warping of the metal parts exposed is bound to occur. Metal exposed to heat may warp temporarily, and if cooled gradually may return to its original condition; but if, while thus heated, pressure is exerted upon it the molecules of the metal are liable to set in this warped condition and the deflection becomes permanent. This results in loss of compression

and probably in ruining the cylinders or pistons. A common occurrence when the motor is run for any length of time in this condition is the cracking or blowing in of the face of the piston. However, the most immediate destruction occurs in the bearings both of the main shaft and connecting rods, as when the blow of the explosion occurs the tendency is to drive the piston outwardly, and the above-mentioned bearings act as an anvil and receive nearly all the force of this blow. The connecting-rod bearings naturally receive the greater portion of it, as the weight of piston and connecting rods is comparatively light, while the crankshaft is of sufficient weight that it resists the blow with comparatively little movement, and the connecting-rod bearings are caught between the two opposing forces.

How the Other Working Parts of the Car Are Affected.

Going beyond the motor; as long as the car and motor are running smoothly the stress upon the gears, shafts, chains and differential is very nearly constant, and energy is being furnished by the motor, at a practically uniform rate, just sufficient to overcome the natural load—that is, the frictional resistance in the mechanism and the inertia of the car.

When, however, the engine begins to labor and approaches the stalling point the strains acting upon all parts of the car are intermittent and the loads thrown upon the parts vary greatly, from severe driving strains at the height of the power stroke to slight driving force, or perhaps zero or nearly negative loads, at the end of the compression strokes. While, of course, the parts of the car thus affected are, beyond the motor, not subjected to heat, such strains are still of the fatiguing nature and in course of time result in crystallization or breakdown.

As the primary cause of all this is overload, the first relief therefrom lies naturally in the reduction of the gear.

There is a common tendency among motorists to avoid shifting gears from a higher to a lower setting, and they will, therefore, compel their engine to labor and overheat on grades where they should have long before dropped back to a lower gear.

It is by no means uncommon to see motorists coaxing their car over a grade on the high gear, when, by reducing to the intermediate or even in case of a two-speed transmission to the low, the motor could, by this lightened load, speed up and take the car at a much higher speed than under the labored conditions incident to the high gear. Thus, to gratify a misguided desire to "take the hill on the high," the driver subjects his car not only to excessive but wrecking strains, and at a loss rather than a gain of speed, and often discomfort to his passengers owing to the jerky motion of the car. The careful and experienced operator will take every reasonable precaution to avoid overloading of his motor, and will be amply repaid for his precaution in the long life and smooth running of his car and all its appurtenances.

WHAT THE AUTOMOBILE MEANS TO FRANCE.

It is not to be denied, says *L'Economiste europeen*, that automobiling, which at its debut was purely a Parisian sport, is now becoming the national means of transport. The proof is furnished by the statistics of the direct fiscal contributions of the 26,262 automobiles in use in France in 1906, of which the city of Paris only accounted for 5,058, while French cities of less than 5,000 inhabitants possessed a total of 9,710 machines, that is, 91 per cent. more than Paris. Nor must it be lost to sight, what they bring into the treasury in the form of both direct and indirect taxes. Where the first-named are concerned, the progression since 1899 is as follows: 1899, 90,830 francs; 1900, 156,497 francs; 1901, 381,105 francs; 1902, 635,772 francs; 1903, 934,604 francs; 1904, 1,311,187 francs; 1905, 1,763,792 francs; 1906, 2,263,651 francs. These figures do not include those municipal taxes, such as those of Paris, for example, that are equivalent to the impost levied by the State itself. So far as taxes that automobiling pays indirectly are concerned, such as in duties on gasoline, lubricating oils, grease and the like, it is not too much to say that these are valued at fully five times as much as the direct contributions.

THE AUTOMOBILE CALENDAR. AMERICAN.

Shows and Meetings.

- Oct. 24-31.....—New York City, Grand Central Palace, Eighth Annual Automobile Show, Automobile Club of America and the American Motor Car Manufacturers' Association.
- Oct. 31-Nov. 7.....—New York City, Madison Square Garden, Eighth Annual Automobile Show, Association of Licensed Automobile Manufacturers.
- Nov. 29-Dec. 6.....—Chicago, Casino Garden, Second Annual Auto Parts Show. A. M. Andrews, Secretary, 184 La Salle Street.
- Nov. 30-Dec. 7.....—Chicago, Coliseum and First Regt. Armory, Eighth Annual National Automobile Show, and First Annual Commercial Vehicle Show, National Association of Automobile Manufacturers.
- Dec. 14-21.....—St. Louis, Mo., New Coliseum, Second Annual Auto Show, St. Louis Automobile Manufacturers' and Dealers' Association.
- Dec. 28-Jan. 4.....—New York City, Madison Square Garden, Importers' Salon. C. R. Mabley, secretary and manager.
- April 6-11.....—Buffalo, Convention Hall, Motor Boat and Sportsman's Show. D. H. Lewis, manager.

Races, Hill-Climbs, Etc.

- Sept. 2.....—Wildwood, N. J., Straightaway Race Meet, Motor Club of Wildwood.
- Sept. 2.....—Chicago, Harlem Track, Race Meet under the auspices of the Chicago Automobile Club.
- Sept. 2.....—Bridgeport, Conn., Labor Day Hill Climb, Sport Hill, Bridgeport Automobile Club.
- Sept. 5.....—Chicago, Cedar Lake Economy Run, Chicago Motor Club and Chicago Automobile Trade Ass'n.
- Sept. 7.....—Hartford, Conn., Hill Climb, under the auspices of the Automobile Club of Hartford.
- Sept. 7.....—Philadelphia, Point Breeze Track, Quaker City Motor Club.
- Sept. 7.....—Minneapolis, Minn., State Fair Race Meet of the Minnesota State Automobile Association.
- Sept. 9-10.....—Pittsburg, Pa., Brunot's Island Track, Race Meet, Automobile Club of Pittsburgh.
- Sept. 14.....—Jamestown (Va.) Exposition, Aeroplane Contest for "Scientific American" Prize.
- Sept. 14.....—Albany, N. Y., 95-mile Road Race, under the auspices of the Albany Automobile Club.
- Sept. 20.....—Milwaukee, Wis., State Fair Grounds Track, Race Meet, Milwaukee Automobile Club and Milwaukee Dealers' Association.
- Oct. 21.....—St. Louis, Mo., International Aerial Race of the Gordon Bennett Prize, Aero Club of America.

Motor Boat Races.

- Aug. 22.....—New York to Jamestown (Va.), Annual Cruise, American Power Boat Association.
- Sept. 2-6.....—Jamestown (Va.) Exposition Motor Boat Races.

FOREIGN.

Shows.

- Aug. 1-Sept. 30.....—Holland, Amsterdam, International Exhibition of Motors and Machines, Palace of Industry.
- Sept. 28-Oct. 7.....—Denmark, Copenhagen International Automobile Show.
- Nov. 11-23.....—London, Olympia Motor Show.
- Nov. 12-Dec. 1.....—Paris, Exposition Decennale de l'Automobile, Grand Palais, Esplanade des Invalides, Automobile Club of France.
- Jan. 18-Feb. 2.....—Turin, Italy, Fifth International Automobile Exposition, Palace of Fine Arts, Valentino Park, Automobile Club of Turin.

Races, Hill-Climbs, Etc.

- Aug. 23.....—Belgium, Ostend Motor Boat Meeting.
- Aug. 11-29.....—France, Coupe de Auvergne.
- Sept. 1-2.....—Italy, Brescia Circuit, Florio Cup. A. C. of Italy.
- Sept. 15.....—Austria, Semmering Hill Climb, Austrian Automobile Club.
- Sept. 15.....—France, Chateau-Thierry Hill Climb.
- Oct. 1-15.....—Paris, Electric Vehicle Competition, Automobile Club of France.
- Oct. 20.....—France, Gallion Hill Climb.
- Nov. 1-15.....—France, Volturette Contest near Paris.
- May 16, 1908....—Sicily, Targa Florio, Automobile Club of Italy.
- July 14, 1908....—Paris to London, Aerial Race.

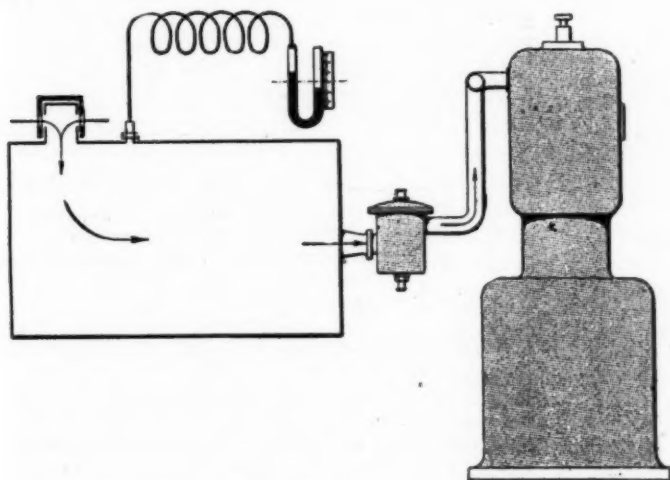
INFLUENCE OF ALTITUDE ON MOTOR POWER*

IT is a matter of common knowledge that as the atmospheric pressure decreases, and in consequence the mass of the volumetric unit of air diminishes, the power of an internal combustion motor for a given piston speed also falls off. It is interesting to observe in what ratio this takes place with increasing altitudes. The problem is particularly interesting to those who are devoting attention to the subject of aviation, whether as advocates of the dirigible balloon, or the aeroplane, even though the latter rarely get above the level of the earth.

Several authors have estimated that the power of a motor should be proportional to the mass of the mixture aspired in a certain unit of time, assuming a constant angular velocity, and to render it proportional to the density of the air, it may be joined with the altitude in the following equation:

$$\frac{D}{D_0} = \frac{1}{e^{DA}}$$

In which D corresponds to the altitude A; D_0 is a degree of density corresponding to the altitude 0, and e the base of the



APPARATUS AS ARRANGED FOR CARRYING OUT EXPERIMENTS.

Naperien logarithm. The result is then:

$$\frac{P}{P_0} = \frac{1}{e^{DA}}$$

or:

$$\log \frac{P}{P_0} = -\log e^{DA} = 0.00005435A$$

which demonstrates that the altitude increasing in an arithmetical progression, the power will decrease in a geometrical progression, so that at 1,000 meters the result would be $\frac{P}{P_0} = 0.88$.

Unfortunately, this theory is inexact, because it does not take into account the diminution in compression which will cause a rapid falling off in the output of the motor. On the other hand, the depression produces an enrichment of the mixture, which is not a negligible factor, as at 1,000 meters ($p = 670$ mm. approximately), and there will be necessary an additional volume of air of about 0.08. This enrichment of the mixture partially compensates for the loss in compression.

The variations in the amount of power produced have been ascertained experimentally by reproducing artificially different variations in pressure to correspond to various altitudes, and the following results have been obtained with a four-cylinder, four-cycle motor, the bore and stroke of which measure 100 by

120 mm., respectively, with a pressure of 760 mm. and an output of 33 horsepower at 1,350 r. p. m.

Altitude in Meters.	Pressure.	$\frac{P}{P_0}$	Effective Horsepower.
—	—	—	—
0	760	1.00	33
1,000	670	0.84	28
2,000	590	0.72	24
3,000	522	0.60	20
4,000	462	0.50	16.5
		P	
A	p	P_0	P

The apparatus employed in the conduct of the experiments was very simple and its arrangement is illustrated by the accompanying line sketch. The motor was direct-connected to an electric brake, and the charge was modified in order to always a constant angular velocity of 1,350 r. p. m. The automatic carburetor was adjusted so as to permit the motor to develop its full rated output of 33 horsepower at the above speed, at atmospheric pressure, and was not touched throughout the course of the experiments. Its air supply was taken through a tank of relatively large dimensions (120 liters) and provided with a cock to permit the operator to vary the pressure in its interior at will, the latter being recorded on a mercurial manometer mounted on the end of a spiral tube communicating with the tank.

As a beginning the air cock is opened, and after regulating the rheostat their pressure and the power may be read directly and easily converted into terms of altitude and effective output. We have neglected the error of excess back pressure due to the fact that the exhaust is at atmospheric pressure regardless of the variations at the intake side of the motor, as that pressure is, to put it in another way, of a secondary order, and experience shows that it is counteracted by that of the muffler. Naturally it is not possible with the aid of such crude apparatus to also study the effect of the low temperature reigning at such high altitudes on the homogeneity of the mixture. But in practice this great cold would simply necessitate a correspondingly great preheating of the carburetor. In short, the drop in the power follows rapidly that of the density of the mixture, as our reasoning has indicated *a priori*. On the other hand, the speed of a dirigible balloon should not be diminished overmuch on that account, as the resistance of the air diminishes with its density. In any case at the altitude assumed, i. e., 1,000 meters, the actual output of the motor is very slightly less than that calculated at a normal atmospheric density, and the speed of a balloon should not be appreciably affected.

While the question of decreasing power with increasing altitude naturally comes to the front most prominently in connection with the problem of aviation, particularly as concerned with the dirigible balloon at the moment, owing to the heights the latter may easily reach, it must be borne in mind that there are also numerous places on *terra firma* where automobiles are used that may present very similar conditions. For instance, much of the western part of the United States represents an altitude of several thousand feet above sea-level, and the same is true of almost the entire habitable portion of the great plateau of Mexico, which is of an average height of considerably more than 1,000 meters above the sea. Then there the heights of India and other eastern countries where the automobile is very rapidly being introduced, so that it may readily be appreciated that the question of a loss of power as the air becomes rarer is one of considerable importance to autoists in such situations. Now that the subject has been taken up as a proper matter for scientific research, doubtless further investigations will be made, with interesting results.

*Translation from *La Technique Automobile*, Paris, by Charles B. Hayward.

LETTERS INTERESTING AND INSTRUCTIVE

CAUSE OF A MYSTERIOUS LOSS OF POWER.

Editor THE AUTOMOBILE:

[863.]—We are puzzled over the running of a little Oldsmobile curve-dash runabout of the 1906 type, which we have used about 5,000 miles. The machine was never damaged, and has given satisfaction until about three weeks ago, when it lost speed, and whereas it formerly ran about 25 miles an hour on the level, it now does not get above 15, and the throttle seems to have no effect after it is depressed past one-third of its travel.

The machine has had plenty of the best oil, the coil adjusted to every position, also the carbureter. Batteries have been renewed time and again and tested, both as a whole and separately. The machine also has recently been rewired, new secondary cable being used, fearing that this might have something to do with it. The valves have been newly ground into a nice gray bearing, and the piston rings do not leak compression. The engine is not tight in any of its parts, and turns over easily by hand, except with compression on, when it cannot be turned over without danger of breaking the starting chain, showing that the compression is normal. All kinds of spark plugs have been tried, but with no effect.

The inlet valve closes about five inches on the rim of the flywheel too late, according to the instructions of the manufacturer, but opens about right. The exhaust valve both opens and closes on time. The axles are in perfect alignment and well oiled, and the differential is in good condition and well oiled. Please give us something new to try, as this has puzzled us more than anything we have tackled in our five years' experience on all kinds of cars. Winchester, Va.

J. FRANK EDDY & BROTHER.

Your troubles with the little Oldsmobile strike a responsive chord, as the writer put in the better part of a summer trying to solve a similar case last year. As you say the compression is normal, it is evident that the apparent late closing of the inlet valve has no bad effect, and you will find that the makers are very frank in their instruction book, stating that no pretensions are made to accuracy in the valve adjustment and that a few inches one way or the other was of no particular moment. Moreover, the distance of five inches on the flywheel periphery when translated into movement at the valve is practically a negligible factor in this case. The difference may probably be traced to the cam which has worn one-sided, thus giving the proper opening, but late closing. However, it is evident that the valve must be closing at about the right time, as otherwise the compression would be very poor, its failure to close allowing the escape of a considerable portion of the mixture. Judging both from the experience above referred to and that of others which has been of almost an identical nature, we feel pretty certain that you will be able to trace the trouble to the carbureter, but whether you will be able to remedy it without replacing the carbureter altogether is another matter. The difficulty appears to lie in the working of the auxiliary air inlet, and its failure to open as the speed of the motor increases accounts for that most exasperating of annoyances, the failure of the engine to pick up as the throttle is opened. Note the position of the auxiliary valve and its spring, the tension of which is controlled by a vertical screw protruding through the cover of the mixing chamber. Then take them down and see if dirt or other foreign matter has entered to prevent the movement of the diaphragm, or if the spring has become dead, allowing the valve to stick in one position. The effect is to cause the mixture to become entirely too rich when the throttle is opened, so that after a certain point the latter either has no effect or actually causes the engine to slow down. Several experts "sat" on the case we refer to on numerous occasions and each time it would look as if the trouble had been cured, but it never stayed cured for more than a day or so at a time. In all probability the replacement of the inlet cam on your machine and attention to the carbureter as above outlined will be found sufficient to cure it. At least it will give you what you ask for, i. e., a new line upon which to branch out and which should probably result in your effecting a complete cure of the ailment without any further extended sessions of tinkering such as you refer to.

TWO-CYCLE MOTOR DIMENSIONS WANTED.

Editor THE AUTOMOBILE:

[864.]—Being a constant reader of "The Automobile," and valuing the Letters Interesting and Instructive as I do, I would like to ask a few questions on my own account.

In a two-cycle engine of the three-port type, the cylinder dimensions being 5 by 5 inches, what should the dimensions of the ports be; what should the compression space be, and what length of connecting rod and piston should be used? C. A. BROWN.

Reading, Mich.

Make the compression space thirty per cent. of the stroke, which in this case would be 1 1-2 inches. If a higher compression be desired, this may be shaded somewhat, though it is unusual to make it less than twenty-five per cent. Have the exhaust port open one inch from the end of the stroke or lower dead center of the crank and the inlet port 11-16 from the end of the stroke. This gives a drop of 5-16 inch between the two and it is none too much; in fact, it might be increased slightly to advantage, as it is pretty near the minimum. The ports themselves should not be less than 3 3-4 and 3 1-4 inches long, respectively, though it is not unusual to find engines of this type in which the ports are made to extend almost around the circumference of the cylinder. The bottom of the ports should coincide with the top of the piston when the latter is at the lower end of its stroke. The piston can be made six inches long, though it is permissible to make it as long as possible consistent with the remainder of the design, i. e., that of interference with the connecting rod, as a long piston gives a better bearing in the cylinder. In automobile motor design the length of the connecting rod is usually based on that of the stroke and varies with different makers, though 1.8 to 2 is a usual proportion. This would give nine inches in the former and ten inches in the latter case.

SOME COMMON REASONS FOR DEAD BATTERIES.

Editor THE AUTOMOBILE:

[865.]—Won't you kindly tell us something about volt and ammeters, particularly to pocket kind usually used by autoists, with the most implicit faith as to their accuracy and reliability, in telling how much available capacity remains in an ordinary dry cell?

First, as to voltmeters. I have a distinct impression that as measures of voltage (pressure) they can be absolutely accurate, and that when contact is made with a dry cell, owing to the resistance in the meter, no appreciable damage is done to the dry cell, even if contact is held for an abnormally long time. Am I correct in this impression?

Second, as to amperemeters. Isn't the prevailing idea that such meters accurately measure the amount of available current still procurable from any dry cell very far from the truth? Isn't it a fact that the amperemeter simply measures the amount of flow as being such as would give, say, fifteen amperes for one hour or one ampere for fifteen hours without in any way indicating how long such flow will continue?

Isn't it also true that the ammeter short-circuits the battery with so slight a resistance that it damages the battery very rapidly if kept in contact?

If this latter is true, isn't it good practice to buy fresh dry cells of a good make and put them in service without testing them with the ammeter and, as soon as they begin to show weakness, throw them away and replace with new, and never to use an ammeter excepting if caught on the road with a lot of old cells to differentiate between those that will still give off some current and those that are totally dead?

Should some manufacturer of dry cells put one on the market with the terminals sealed, so that it could not be wired up or tested without breaking the seals, he would find me a customer, as I certainly would not buy a bottle of whisky that did not have a cork in it, and when buying dry cells what I fear most is not that they will be old, but they will have been damaged by repeated tests by ammeters in the hands of people who believe that the most valuable thing in a cell is its ability to show large amperage on a pocket meter, or that the cells may have been damaged by being carelessly short-circuited.

For instance, about a month ago I saw quite a large stock of dry

cells stored on a shelf waiting to be sold, and on top of them a lot of wire electric light cages. One can imagine the possible condition of such cells.

And again, last week I saw a machinist take off his jumper, which was very damp, if not actually wet with perspiration, and throw it on top of a lot of dry cells. His day's work was done, but the jumper and dry cells probably worked all night.

Such information as you give us in reply to the above will, I believe, be valuable to others as well as to
New York City.

"GASOLINE SAL."

1. Your impression with regard to the voltmeter is correct. The coil in such an instrument is wound to a comparatively high resistance, and the potential of the dry cell being very low, it is unable to force more than an infinitesimal amount of current through the meter and thus connection with the latter will seldom do any harm, even though continued for some time. It is on this account that the makers recommend that nothing but a voltmeter be used in testing storage cells.

2. The popular impression that an ammeter records the amount of current still available in a dry cell at the time of testing is altogether erroneous. As you state, the reading is merely that of the momentary flow of current and is no indication whatever of how long the cell will continue to produce that amount of current. The use of the ammeter is very detrimental to the dry cell and dangerous with an accumulator, as the coil of the instrument has a very low resistance owing to the fact that it is necessary that the entire current output to be measured should pass through it. Hence, it is equivalent to short-circuiting the cells by dropping a screwdriver across the terminals or in some similar fashion, seldom intended, to hold the ammeter on them. As is to be implied from your further statement, it is very probable that the average user damages the cells far more in testing them than does the service to which they are subjected, and this is particularly true of the salesman in the supply store. It is good practice never to use an ammeter unless there is some doubt as to whether the cells are really dead or not, and there is no other means, such as a voltmeter, to test them with. Of course, a voltage reading is not as accurate an indication of the state of a dry cell as a current test, but it suffices to show whether the cell is active or not. The instances of the treatment you speak of are nothing out of the ordinary and doubtless serve to account for more or less of the dissatisfaction arising from the use of dry cells, while your suggestion as to sealing the terminals at the factory and selling the cells in that condition is a valuable one that might be adopted with profit to themselves and the users by the makers.

LIGHT ON THE CHARACTERISTICS OF ACETONE.

Editor THE AUTOMOBILE:

[863.]—I have been curious to find out ever since the adoption of the small portable, acetylene gas tanks for auto lighting just how the latter were made to hold sufficient gas within such a very small compass, as I notice they seem to have enough to burn quite a long time. Recently I was informed that the acetylene gas is combined with acetone in the tank, the latter material acting as a solvent, and permitting the tank to hold many times the quantity of gas it would have the capacity for without this addition. It certainly appears to be a very anomalous state of affairs to be able to put five or six times as much of a substance in a given space by the addition of another substance which also occupies space itself. Ordinarily, if it is desired to fill a cylinder with a capacity of two cubic feet, for instance, with oxygen or any other gas, the only way to make it hold more than two cubic feet is to compress it. But if a given quantity of some other gas be put into the same tank it will no longer be possible to put as much oxygen in it as formerly.

Then, what is acetone? This is the question I have asked on several occasions since learning of its use in these small tanks, but have never been able to learn anything satisfactory or definite concerning it. I ask the question merely out of a desire to have the knowledge, but have no doubt there are many others in my situation who would be interested to learn something about it.

Denver, Col.

CURIOUS.

Acetone, also known as pyroacetic spirit, is produced by the dry distillation of acetate of lime—a product made from lime

acted upon by pyroligneous acid. Its symbol is $(CH_3)_2CO$, and it is composed of three parts carbon, six of hydrogen and one of oxygen. It is also obtained by the destructive distillation of citric acid, starch, sugar, or gum, with quicklime. It is a volatile liquid with a specific gravity of 0.8 boils at 133 F, and has the peculiar property of acting as an absorbent of acetylene gas under pressure to the extent of several times its own volume.

WHAT EFFECT HAS ALTITUDE ON HORSEPOWER?

Editor THE AUTOMOBILE:

[867.]—This city and its environs, as well as the greater part of what is known as the great plateau of Mexico, are situated at an altitude ranging from 8,000 to 10,000 feet above the sea level. Recently I have had a discussion with a friend here regarding the effect this would have on the internal combustion motor used in gasoline automobiles, as the latter are dependent for their functioning upon the atmospheric pressure. Theoretically, such an engine built at sea level and adjusted to run under the atmospheric conditions prevailing at such a level should require a great deal more air in order to develop the same amount of power when brought to this altitude owing to the greater rarity of the atmosphere. This is my contention. I do not know of any automobiles that are manufactured in places having a high altitude and do not see how the makers could adjust their engines to run under such conditions with knowing the nature of the latter. My friend is of the opinion that all this theory business is what you Americans call "rot"—scientific rot, he calls it—and says that no difference is necessary here for running an automobile engine at its full power as compared with any place in the United States. I am quite certain that unless special adjustments be made to compensate for the relative difference in atmospheric density, an automobile engine brought here directly from a low situation and adjusted to run in the latter will not develop its full power. Am I not right? Your opinion in the matter will doubtless enable me to show my automobile-wise friend that he does not know it all.

Mexico City, Mex.

EMILIO GONZALEZ.

Your inquiry is very opportune, as although it has been well known that altitude has a very appreciable effect on the horsepower of an internal combustion motor, there has been no definite data to hand previously. However, in the present issue, you will find a résumé of the experiments made along this line by a French investigator, who produced pressures corresponding to various altitudes from 1,000 to 4,000 meters, artificially. Of course, the apparatus employed was admittedly crude, and probably the results attained are not as accurate as they might be made when subjected to closer investigation, taking into account every possible factor that could have any bearing on the outcome. But they show, nevertheless, that altitude has a great effect on the horsepower of a motor, the decrease being practically fifty per cent. at an elevation of 4,000 meters.

EFFECT OF MIXING ALCOHOL AND GASOLINE.

Editor THE AUTOMOBILE:

[868.]—Kindly tell me through your columns the effect of mixing alcohol and gasoline, its proportions, effects, desirability and dangers, if any.

SUBSCRIBER A. E.

New York City.

Practically speaking, alcohol and gasoline will not mix. That is, one cannot be dumped into the other and a mixture of both result. It has been found by experiment that a mixture of 50 to 60 per cent. of alcohol to gasoline may be made, but six to eight days are required to combine the two liquids, this also involving a process not possible outside of a laboratory. As to its effect as a motor fuel we have no data. There is no danger involved.

FINDS THE MAKER'S ADJUSTMENTS CORRECT.

Editor THE AUTOMOBILE:

[869.]—In the issue of August 8 of "The Automobile" I note your answer to my question, No. 850, and beg to state that I have received satisfactory results from lowering the level of the gasoline and enlarging the size of the jet, as originally arranged by the manufacturer of the car. As to my experience in repair shops, I might say that the manufacturer really adjusts the carburetor to the engine to give the best results. Kindly publish this in answer to my inquiry No. 850, as it may be of benefit to others.

Greenwich, Conn.

JOHN McWILLIAMS.



FRANKLIN MODEL D, FOUR-CYLINDER TOURING CAR.

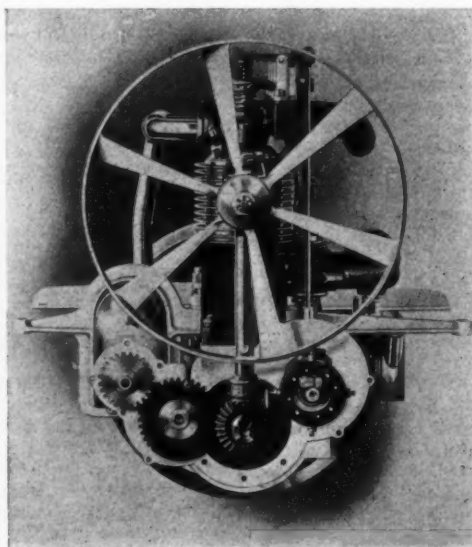
WHILE the Franklin models for 1908 probably embody more distinctive new features than have come to light on any of the new models thus far uncovered, their makers, the H. H. Franklin Manufacturing Company, Syracuse, N. Y., lay particular stress in their announcement on the fact that the new Franklin has more power. Through refinement, perfection in construction and a slight increase in size, the motor formerly rated at 20 horsepower has been constructed to give an actual output of 28 horsepower on the brake, and of the factors leading up to this result the increase in size has doubtless had the least influence. While still retaining the basic principles that have always distinguished the Franklin motor, its designers, through a process of evolution, have succeeded in bringing out something entirely new, and something that is, moreover, in direct accord with engineering principles calculated to produce the very highest efficiency in an internal combustion motor.

In place of the former cylinder construction, a dome-shaped head has been substituted, this semi-spherical form being considered ideal for the internal combustion engine, for the reason that a sphere exposes the least surface for any particular volume—in other words, a minimum amount of surface for a maximum volume—and thus there is less of the interior of the cylinder exposed to the direct heat of the exploded charge, and the efficiency of the engine is increased. A further advantage is obtained in that the fresh charge may be introduced directly into the cylinder, and thus be kept at a much lower temperature than is otherwise the case. To accomplish this, the intake and exhaust valves have been constructed with a common center and are made concentric, thus permitting of the utilization of a greater valve area, and making possible the induction and expulsion of larger quantities of gas than through the former type of separately constructed valves, which limited their size to one-half that which can be secured by this new method of construction. The horsepower was consequently restricted, as the limitations of the valves made it impossible to secure the highest degree of efficiency available from a given size of cylinder, while this construction tends to bring about this long-sought result. It

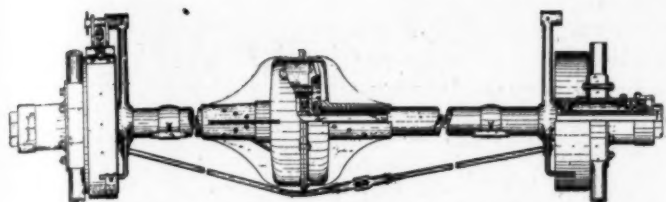
also adds to the cooling ability of the motor by insulating the exhaust valve from the cylinder, the burnt gases being discharged through the central valve, while the fresh charge is inspired through the large intake valve surrounding the exhaust.

The method of valve operation employed on the 1907 models has, however, been retained, the rods being actuated through the medium of a set of hyperbolic-shaped cams on the single cam-shaft. The design is such that the movement of the valve lifter has been reduced to a minimum and with the aid of the perfected shape of the cam this otherwise more or less noisy part of the motor has been effectually silenced. Nor has any change whatever been made in the design or construction of the auxiliary exhaust system, which has long been a distinctive characteristic of the Franklin, though, as a result of extensive experimenting with the aid of a Schulze manograph, it has been found that the back pressure upon the piston has been reduced to a maximum of two pounds through the use of the auxiliary exhaust. The Franklin designers were always confident that this reduction was a substantial one, but it was not until the establishment of the laboratory at the Franklin plant that they were able to verify it, or state the amount definitely.

Another new feature of the Franklin motor, the origin of which, however, dates back to several months ago, is the use of oil baffles over the open end of each cylinder, and through which the connecting rod operates in a transverse slot. This compels the splashing of the lubricant in the crankcase exactly where it is most needed—the working side of the piston—and likewise prevents its being thrown about indiscriminately on the working parts, thus giving more uniform and efficient lubrication with the same quantity of oil as formerly employed. In planning the motors of the 1908 models, considerable experimenting was carried out in order to ascertain the heat-conducting value of various different metals, with the result that phosphor bronze of a high elastic limit is found to be very much superior to other metals or alloys for this purpose. In consequence, it has been decided to cast the cylinders of the 28-horsepower Type D, plain, and equip them subsequently with flanges



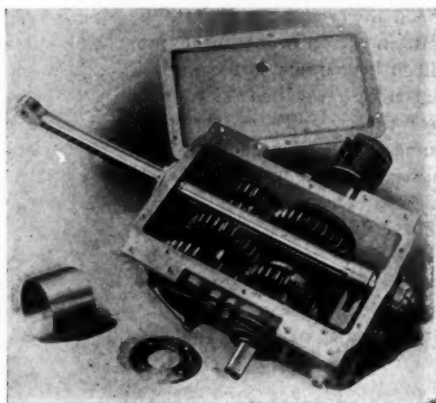
FRONT VIEW OF MOTOR SHOWING GEARS.



REAR AXLE UNIT OF FRANKLIN MODEL D.

made of this material, shrunk on by a process which causes them to bind tighter as the cylinder becomes heated, thus increasing their radiating capacity. The cylinders are not uniformly equipped in this respect, but the number of flanges is varied according to the position of the cylinder as regards the cooling fan. In accordance with this plan, the cylinder receiving the smallest volume of cooling air from the fan is provided with largest number of flanges, the placing of the latter being so calculated that the temperature of each cylinder will remain uniform under load. The cooling fans, both front and rear, have been so designed and so arranged as to increase their cooling power to the maximum for their size, with a minimum expenditure of energy to drive them, the forward fan now being gear-driven, while the rear one, embodied in the flywheel, serves to cool the engine base.

There are numerous other points of detailed refinement that are of interest as showing, for one thing, the extent of the study and the painstaking attention to detail that the designers have lavished on the car in the search for improvement. Thus a new intake manifold has been evolved; it is formed of brass tube, with the connections spun in, and so constructed as to be much lighter than that heretofore used, besides which it renders air-leaks impossible. Specially treated nickel-steel with a tensile strength of 120,000 pounds to the square inch has been adopted as the material for the crankshaft, while the connect-



NEW FRANKLIN SELECTIVE GEAR SET.

ing rods are also made of special carbon steel. The policy of subjecting every lot of material to thorough laboratory tests before acceptance has been adopted to a far greater extent than obtained previously, and special effort will be made in this direction from now on.

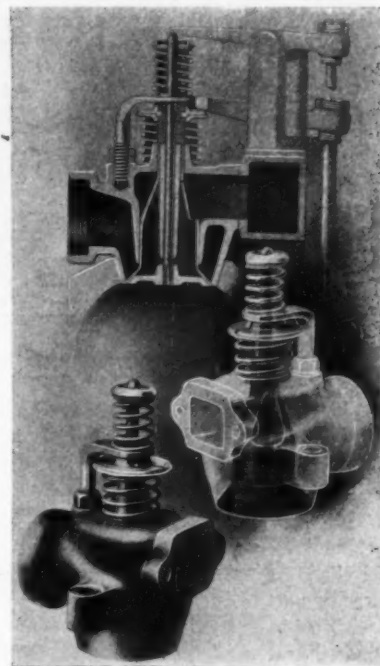
Various changes have been made in the design of the carbureter of the Type D car, including improvements in the jet, float and shape of the mixing chamber, the last-named now being in the form of a Venturi tube, thus securing the maximum effect from the velocity of the air going by the jet. The latter is of the multiple type, and is shaped somewhat similar to the chandelier, allowing the air to mix more thoroughly with the gasoline spray as it leaves the nozzle. A regulation Longuemare type of float is employed, this being designed so that the float level may be readily changed by turning two screws in the float-valve stem, and is noted for its stability on rough roads. Warm air is transmitted to the carbureter by a new method consisting of a heat collector encircling the exhaust pipe, and which conveys the heat thus accumulated through a pipe running around beneath the engine base.

Not the least important change in the new Franklin is to be found in the ignition, and here the chief addition has been the adoption of a Bosch high-tension magneto as one side of a duplicate system of ignition. For the other side, the regulation high-

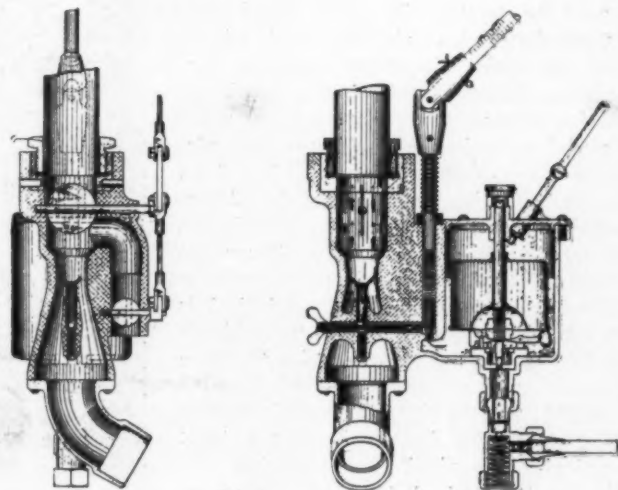
tension accumulator and coil outfit has been retained, the timer, however, being of special construction exclusive to these makers, and on which patents have recently been granted. It is of the roller contact type, but the contact blocks and rollers have been made from chrome nickel-steel and the pins from Tungsten drill rod, all of which are so shaped and hardened that little or no wear ensues from long service, and it has consequently been found possible to obviate any provision for adjustment.

The essential of lubrication is taken care of by a gear-driven oiler, instead of the belt drive formerly used and which is now bolted directly to the engine, thus making its operation much more positive and uniform than was possible with a belt drive. For the greater part, the lubrication system remains unchanged, but detailed improvements have been carried out as the result of past years' experience, so that the makers now feel confident that it represents as close an approach as possible to being trouble-proof.

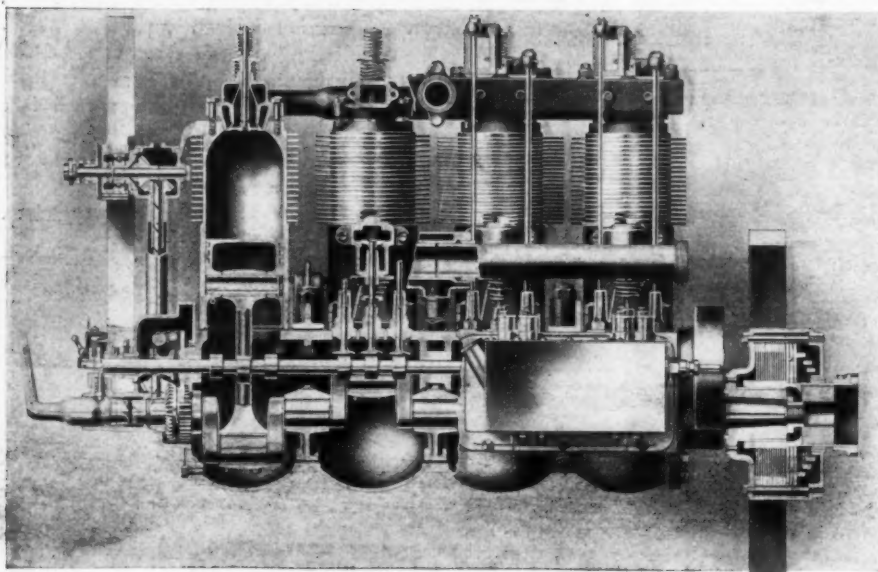
Where the transmission is concerned, the same style of clutch as employed in the previous model has been retained, its operation proving so satisfactory that no change whatever has been made in it. It is of the multiple-disk type, phosphor bronze and steel disks alternating, these two materials being found to give a maximum coefficient of friction without any objectionable sticking qualities. Running in oil, as it does, such a clutch is not only very durable, but extremely easy in operation and free from trouble. The chief change to be found in the transmission is in the shape of an entirely new gear-set, which is of the selective type and is characterized by a simple and effective method of shifting that eliminates the familiar H sector for the lever. Whenever the lever is brought to a vertical position it is automatically set into the neutral position by means of a spring tension. To go into first or low, from this, it is only



VIEWS OF CONCENTRIC VALVES.



END AND SIDE VIEWS OF FRANKLIN CARBURETER.



SECTIONAL VIEW EXHAUST SIDE OF FRANKLIN MOTOR.

necessary to slightly press outward on the lever and back. For reverse, the operation is similar, except that the lever is pushed forward to go into mesh instead of being pulled back. For intermediate, the lever is pressed inward slightly and pushed forward, and for the high-speed or direct drive, pulled back. The gear-lock and lever are integral, operating through a single pawl on the change gear-shaft by means of two teeth cut on one segment forming part of the trunnion. For each change, the spring tension is such as to bring the lever into neutral when shifting toward it, thus facilitating the operation of gear-changing. A new universal block joint has been added in the drive, which by reason of its design and construction is such as to minimize wear and prevent any lost motion, and a new dust-proof oiler is also a feature of the driving shaft.

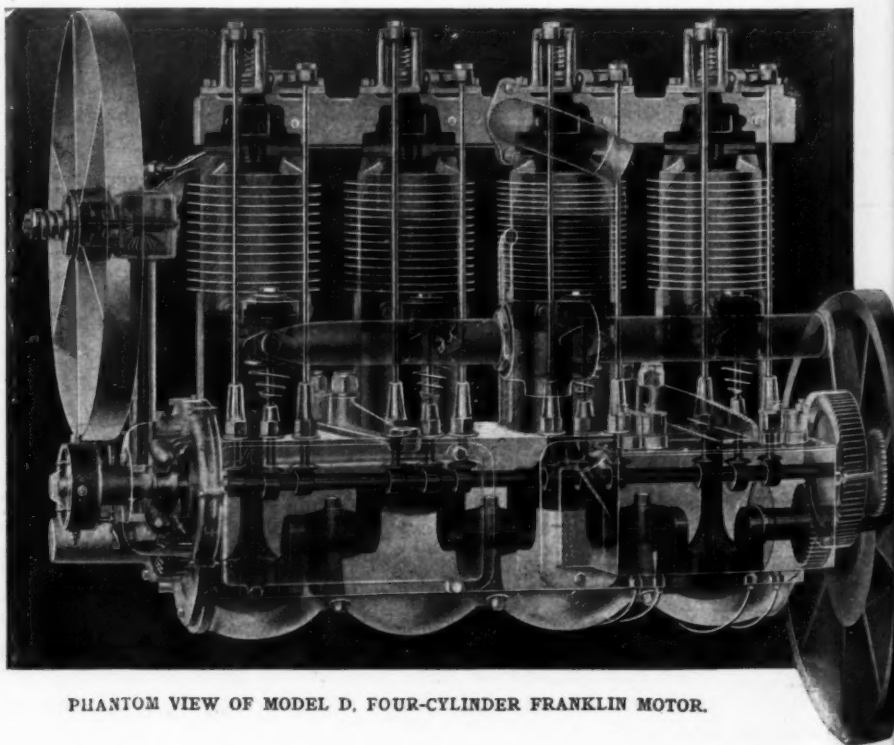
The great amount of attention that has been devoted to the selection of materials for other parts of the car is also visible here, annular ball-bearings now being used throughout the gear-set, as well as on the rear wheels and in the differential, while ball bearings and a ball-bearing thrust are also employed on the gear-driven cooling fan. The motor is distinguished by the use of special die-cast alloy bearings made in accordance with a process of which the H. H. Franklin Manufacturing Company is the owner. The steering knuckles are mounted on adjustable ball-bearings inclosed in dust-proof cases. The connecting rods and joints of the steering gear, which are of hardened nickel-steel, have also been made adjustable. The entire differential has been constructed of hardened steel, making possible a reduction in its weight and increasing its wearing qualities. In its present form of construction, the compensating gear-plate has been eliminated, allowing free access of the oil contained in the dust-tight case to all the pinions. That no possible detail which would tend to increase the comfort of the user or the service rendered by the car has been overlooked is apparent in every feature. An instance of this is to be found in the provision of a new type of starting crank arrangement, which, in addition to obviating the risk from back-firing, also prevents the crank from striking the hood when the latter is raised.

The seamless steel tubular axles with spring-chair, brake-carriers and axle spindles brazed

on, which have been a Franklin feature for some time, have been retained intact, but instead of brazing, the differential housing is now driven on and riveted, thus making it possible to subject the entire axle to special heat-treatment without affecting the differential case. In the hub of each rear wheel is a small concentric reservoir backed by flanging washers, making the hubs dust and water-proof. An increased amount of braking surface has been provided, particularly in the case of the transmission brake, which has been made extra large in order to insure freedom from overheating. The Raymond contracting type of brakes is used, and are prevented from rattling by means of a spring device which holds them firmly in a suspended position when not in use. All the brakes are faced with a special non-metallic lining. In view of the increased power of the car, the tires are of a larger size than formerly, Type D now having 34 by 3 1-2 inch front and 34 by 4 inch rear, which are said to be the largest in current use for the

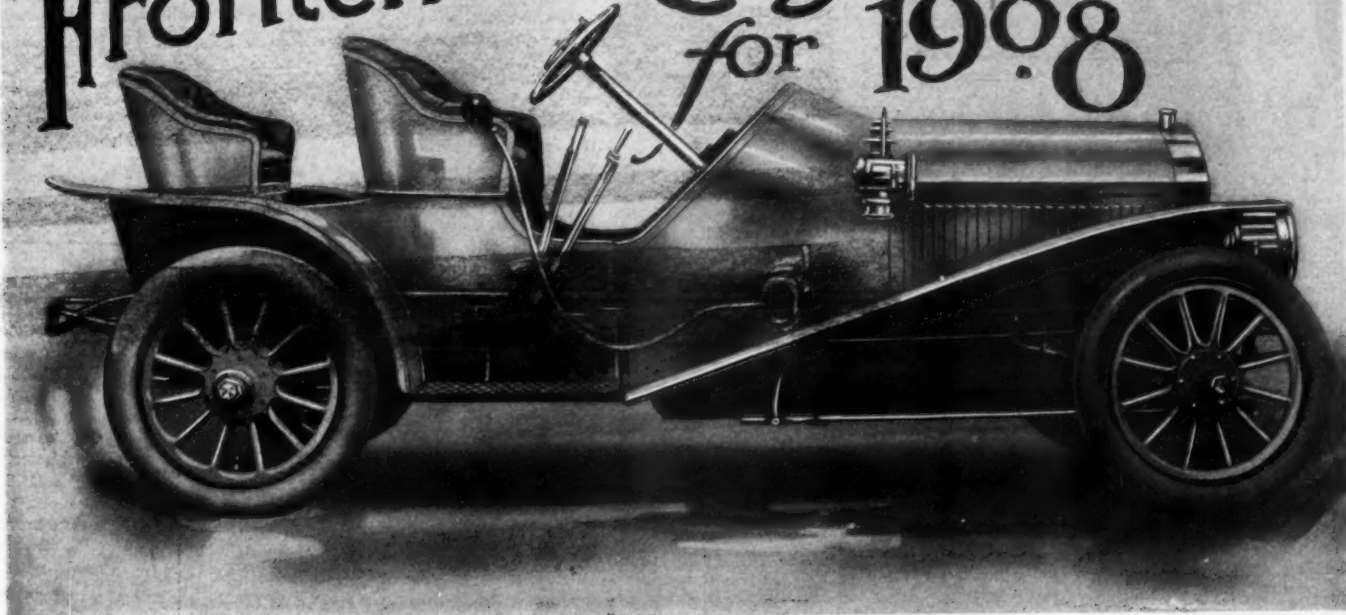
weight of the car, which provides freedom from tire trouble.

The frame is of the special Franklin construction that has always characterized this car, being made of oak sills and carried on 40-inch full-elliptic springs, front and rear. The front mud-guards have been stiffened to prevent undue vibration, and the running boards have been lowered 1 1-2 inches. In spite of the increase of 40 per cent. in the power of the motor, the total weight of the car has been kept down to the same limit as in the 1907 model by a careful selection of materials, which constitutes a further guarantee that the tire bills on the new car will still be kept down to the same low level as has always characterized the Franklin in this important respect. Taken all in all, the new car is a typical Franklin product—the result of long study and close application to the evolution of a system which has proved unusually successful, as is evident from the great number of these cars in daily use all over the country. It may well be termed the evolution of an idea, as the Franklin cars have all been built round the principle of air-cooling, of which the auxiliary exhaust is the mainstay.



PHANTOM VIEW OF MODEL D, FOUR-CYLINDER FRANKLIN MOTOR.

Frontenac Cars for 1908



FRONTENAC 40-45-HORSEPOWER, THREE-PASSENGER SEMI-RACER, WITH FOLDING REAR SEAT.

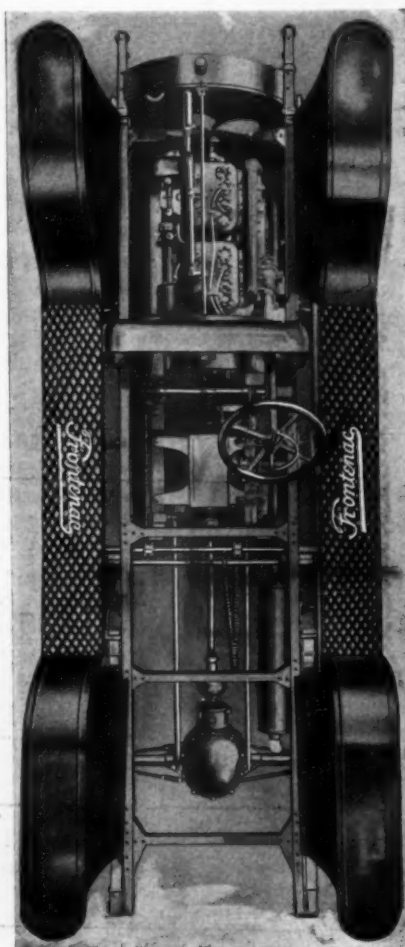
WITH every possible facility for automobile work, as the result of many years' manufacturing in other lines and the consequent establishment of a large and well-equipped plant, it may appear strange at first sight that the builders of the Frontenac car, the Abendroth & Root Manufacturing Company, Newburgh, N. Y., did not enter the market on a large scale immediately upon coming to the decision to enter the ranks of automobile manufacturers. While this company already had the solid groundwork of experience, capital and equipment in other lines, it was lacking at first in that of experience where the automobile was concerned, and has, in consequence, made haste slowly, rather than stand sponsor for an immature product or one that should not represent the closest possible approach to mechanical perfection. With every facility at hand, the Frontenac has been developed slowly and under ideal conditions, which even extend to the roads on which the finished cars are tested out, as it has been truly said of the highways of the Hudson River valley that they are two kinds—up hill and down. Every device which has come to represent a component of the Frontenac has had to go through the process of being tested out on these roads before meeting with the approval necessary to incorporate it as a feature of the car, and the finished cars themselves all get their last and most thorough trying out over these same up-and-down highways before reaching the hands of the purchaser—a process that means future and lasting satisfaction to the latter, as well as to the builder of the car.

The Frontenac motor is of the standard four-cycle, four-cylinder vertical type, placed forward under a hood, and its dimensions are $4\frac{3}{4}$ -inch bore by 5-inch stroke. It is rated at 40-45 horsepower, but shows an excess of 10 per cent. over these figures on brake tests, and this condition is made pre-emptory in the motors before they re-

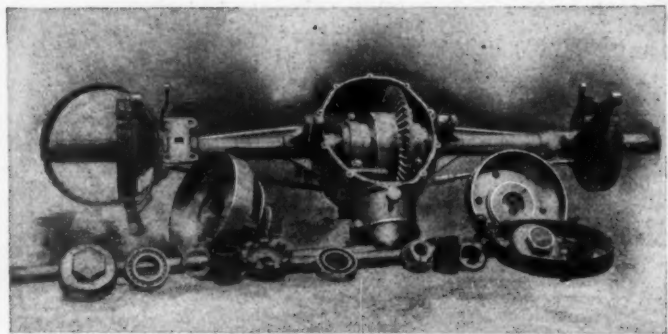
ceive the seal of approval of the testing department. The cylinders are cast in pairs, with the water-jackets integral, while the pistons are cast with flat heads, and are provided with four eccentric rings, slit at an angle of 45 degrees and placed in individual grooves above the piston pins. The latter are hollow and of the rocking type, operating in large bronze bushings, thus insuring ample bearing surface and lubrication. The crankshaft is of the three-bearing type, and the journals and main bearings are all of liberal dimensions, while the bearing surfaces themselves are ground to an exact finish, this also being true of the cylinders, pistons and piston pins.

Both the exhaust and the inlet valves are placed on the righthand side of the motor, the plugs of the duplicate ignition systems being placed over the different valves. These systems consist of a self-contained unit in the shape of a high-tension magneto on one side, and an accumulator and timer system, working through a single unit coil on the other. The magneto is located on the left side of the motor and driven by fiber gears, which also operate the rotary circulation pump, forcing the cooling water from the radiator through the jackets at a point immediately below the exhaust valves, and leaving again at the top of the cylinders. To supplement the radiator a four-blade fan, running on ball-bearings, is provided. Lubrication is entirely by the splash system, fed by means of a gear-driven pump immersed in an oil-well.

The clutch is of the multiple-disc type, self-contained in the flywheel, and consists of alternate plates or rings of bronze and malleable iron, the latter of which are provided with cork inserts. The gear-set provides three speeds forward and the usual reverse, operating on the selective plan, and its components, as well as those of the rear-axle unit, are shown in an unusual manner by the makers, as will be seen from the accompanying photographic illustrations,



PLAN VIEW OF FRONTENAC CHASSIS.



REAR AXLE UNIT DISMOUNTED, SHOWING ITS COMPONENTS.

which reveal both of these important parts dismantled. The use of chrome-nickel steel for the shafts and pinions of these parts, and the employment of ball-bearings of the annular type, are features which show that the highest standards of engineering have been followed where these essentials are concerned. The gear-set is contained in an aluminum housing. The pinions have been especially heat-tested to enable the teeth to withstand shocks, making them practically proof against stripping, though in addition to this a special gear-locking device is provided, so that no trouble whatever has been encountered on this score. Final drive is by propeller shaft, the wheels being attached to the live axle by floating clutches.

The power plant and entire transmission system are supported on a subframe, which, like the main frame, is of heavy pressed chrome-nickel steel, amply braced, the whole being hot-riveted. The suspension consists of four semi-elliptic springs of liberal length and made of the same material, which, together with the shock-absorbers forming a part of the regular equipment of the car, make its riding unusually easy and comfortable. The braking system is concentrated in special drums on the driving wheels, the running brakes, which are pedal operated, consisting of a set of contracting bands on the external faces of the drums, while the emergency brakes, operated by the side lever, are of the internal expanding type and are located in the same drums. The front axle is an I-beam forging of carbon steel, the steering knuckles being mounted on ball-bearings, while particular attention has been paid to providing a type of steering gear that not only has as high a factor of safety as possible, so far as design is concerned, but which is also made of unusually liberal dimensions for the size of the car. The steering column passes through the cast aluminum dash at an angle that is varied, according to whether the model is a runabout or a touring car. The wheels are of the standard artillery pattern, and are equipped with 34x4 1-2-inch tires on the rear and 34x4-inch tires front, the wheel-

base being 124 inches and the tread 56 inches. The length of the chassis over all is 171 inches, with a clearance of 9 inches, while it tips the scales at 2,600 pounds. The models listed include a three-seated runabout, a standard touring car and a limousine.

GERMANY'S TWO BIG SHOWS.

BERLIN, Aug. 14.—Berlin is preparing for a busy fall and winter, as the Imperial Automobile Club has decided to arrange a commercial van and omnibus competition for a period of six days. The competing vehicles will be divided into six classes, for each of which a proportionate daily task has been fixed. Besides this, preparations are on foot for two shows instead of the usual one this year. The limited space at the disposal of the exhibitors in the new hall near the Zoölogical Gardens, only opened last November and confined purely to show purposes, has rendered it necessary to divide the exhibition into (a) cars de luxe and (b) commercial and marine motors. The first is to take place from December 5 to 15 and the second from December 19 to 22. It will be noticed that the date fixed is a month later than ordinarily, when November was the chosen month.

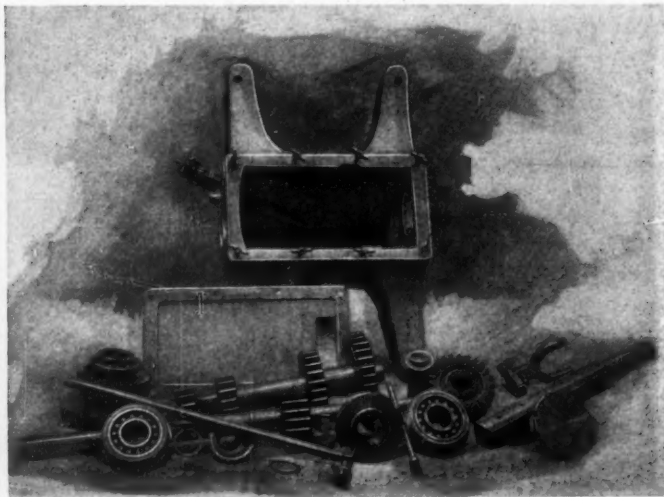
After the West German tour has had to be indefinitely postponed owing to the ministerial permission being connected with alterations of too wide a kind to permit the tour being held on its proposed basis, it almost seems that the fourth German contest, which is even a much larger affair, will meet with the same fate. Wurtemberg and Baden have refused permission for the contestants to enter their countries, and if Prussia is made still more the scene of the affair than was originally intended, it is not at all impossible that the Prussian Government will put up new regulations and turn the competition into a perambulation. The promoters are considering the present state of affairs very earnestly.

According to Professor von Herkomer himself, who is at present staying in Berlin, it seems a little premature to talk with certainty of an English Herkomer event. Questioned on this point, the Professor stated that he could not say, but if he did he would most decidedly be in favor of stricter regulations concerning reckless driving, a thing he himself loathes and abhors, as all who love the car and its future do.

Of all the many proposals for the site of the intended German autodrome, those in the Eifel and the Taunus ranges have found the most favor with the committee, and on the return of the German Emperor the rough plans will be laid before him for his approval. A decision will certainly follow then very shortly. The Taunus is very much favored owing to its central and picturesque position and its standing as a motor track in the automobile world.

AUTO 'BUS TO REPLACE TROLLEY LINE.

One of the most healthful sections of North Carolina embraces Pinehurst and Southern Pines. The country roads of the vicinity hardly deserve the name, being little more than wagon trails over the deep sand and making traveling exceedingly slow and laborious. A trolley line connected Pinehurst and Southern Pines, but there was not enough traffic to make the road a paying investment, and it has been discontinued. There is in process of construction an excellent clay road, the cost of which is being borne by the two towns. An auto 'bus, and one with a capacity of from twenty to twenty-five, is being sought by Southern Pines interests, the representative of which is Leon St. John, one of the managers of the Piney Woods Inn. When good roads become an actuality in this part of North Carolina it will be a favorite section for winter tourists who desire to take their cars South, but are unable to do so on account of the impassable highways. North Carolina will profit to a great degree by the building of good roads, and this fact is being realized by some of its wide-awake communities, as also the fact that nothing tends to bring about this much-needed improvement so quickly as the automobile.



ALL THE PARTS OF THE FRONTENAC GEAR-SET AND ITS HOUSING.

DOES THE PNEUMATIC TIRE INJURE ROADS?

Living as I do close to the main road from Chichester to Worthing, I had ample opportunity of watching the action of fast and large cars last year during Goodwood week, says a writer in *The Engineer*. The large, fast cars might be said to be followed by a rain of small stones or coarse sand, and by the evening of Cup Day—Thursday—the road was more like a sea beach than a main road. I frequently examined a piece of road after the passage of several large cars, and I invariably found that, whereas the road was compressed and the stones crushed down by a farm cart, with an automobile the stones were lifted, in some cases to a considerable depth. The action of a pneumatic tired wheel takes two forms: (a) The load on the wheel tends to bed, *i. e.*, to press down a stone more firmly. The maximum load cannot, however, be applied more than momentarily, owing to the shape of the wheel, and with fast-running cars, the pressure being applied for such a short time, the stone resists movement by its inertia. (b) Owing to the compression of the tire, the tire can act as a "sucker," and, therefore, clings to the stone before action (a) is at its maximum, and the stone, if small, is rolled out of its bed by its connection with a moving wheel, and either thrown off behind or left in place as a "loose" stone. Unless the stone is held in place by an active force, such as being keyed in with others, or being made practically *encastre* with cement, nothing will stand under fast-running pneumatic tired wheels but heavy blocks of stone. A floated surface to an under-bed of rough concrete will be liable to destruction by "rolling out," in the same way that two metal plates soldered together can be separated by rolling out, *i. e.*, by stretching one plate unequally to the other. Ultimate separation is certain in course of time. The time required depends on quality of workmanship and solder.

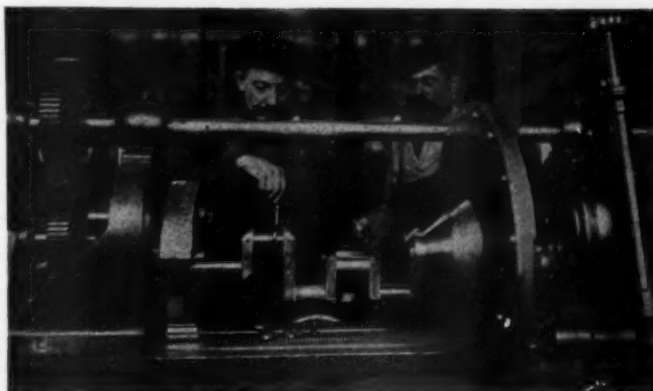
FOREIGN TRADE OPPORTUNITIES.

Among the numerous inquiries received at the Bureau of Manufacturers for automobiles from American consuls in other lands, are the following two, which should merit the attention of makers who devote attention to the export trade. The first is from a consul in one of the Portuguese possessions, naming five persons in his district who are in a position to invest in machines. The demand is chiefly for low-powered cars, ranging from 6 to 12 horsepower, and to give satisfaction they must be of the strongest possible construction, owing to the nature of the roads.

The second is from a consul in Asia, doubtless Siberia, who desires American manufacturers to correspond with a prospective buyer whom he names, and who is in the market for eight 45-horsepower commercial cars fitted to carry about ten passengers in addition to some two tons of luggage. They must also be adapted to run in a country where the snow reaches 8 to 12 feet deep, and on frozen rivers, the temperature reaching 40° C. below zero. They are intended for travel partly through country having no roads and partly on the frozen river. They should be provided with snow shovels. The addresses and necessary data are on file at the Bureau of Manufactures, Washington, D. C., to which inquiries should be addressed.

A new type of induction coil has been invented which has for its advantages small dimensions and but a slight dispersion of the magnetic flux. The current from an accumulator is sent through a first coil, primary and secondary of which have an equal number of turns, and from the secondary of the first coil into the primary of the second coil with closed magnetic circuit, which transforms it to a high potential.

To keep steel tools in their handles, says *Machinery*, fill the handle with powdered rosin and a little rotten stone. Heat the tang of the tool hot, and then push it down hard into the handle. When it is cold it will be firmly set.

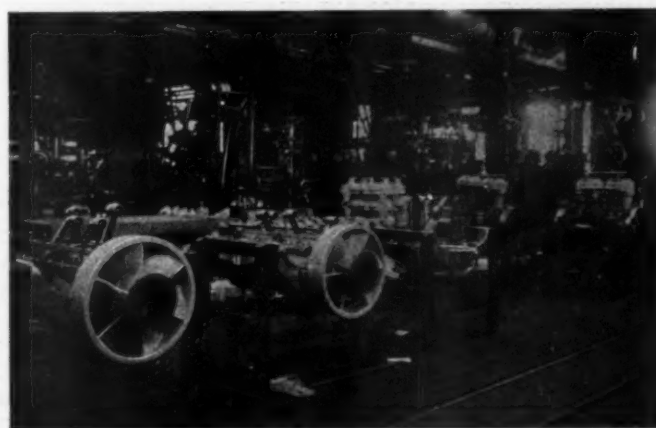


GRINDING A CRANKSHAFT IN THE LOZIER FACTORY.

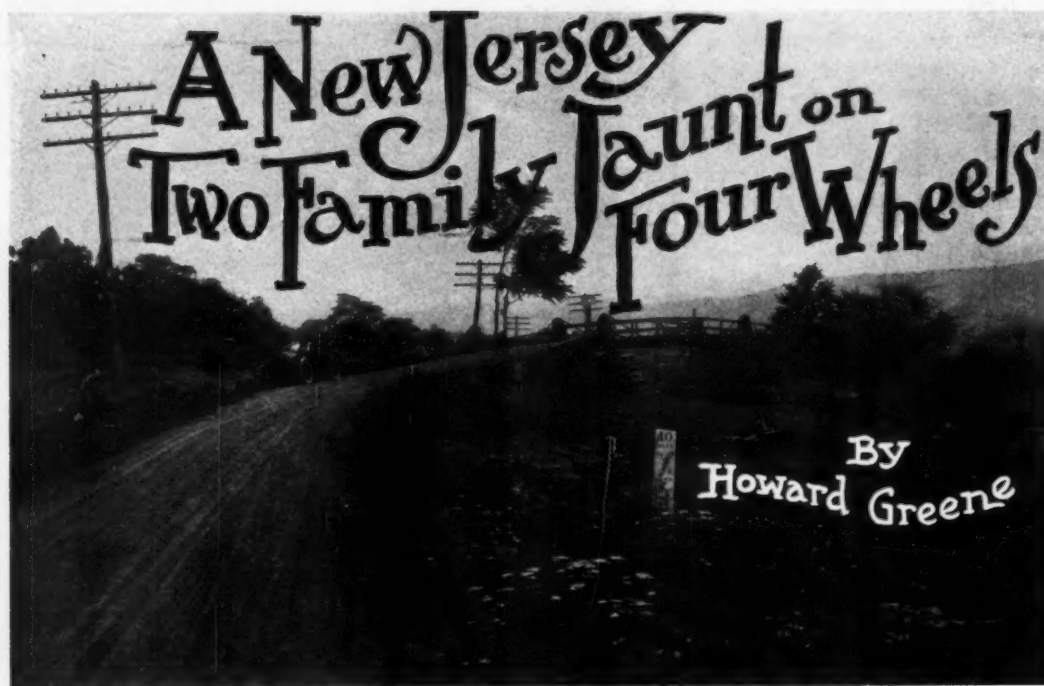
FACTORS IN THE COST OF A HIGH GRADE MOTOR.

Probably not one autoist in a thousand has the faintest conception of the seemingly endless processes that are necessary to the completion of a really high-grade motor—the hundred and one touches of refinement to which every one of its parts is subjected before it is passed as complete—operations that are not essential to its existence as a motor, but that are imperative if it is to deserve the foregoing appellation. It is something difficult for the average layman to understand how it is that two motors of similar dimensions can be turned out to look almost alike as two peas from the same pod, but that, nevertheless, are miles apart in price and in performance and lasting qualities.

To illustrate just where it does come in, the very genesis of the motor—the receipt of the material at the factory—may be taken as the starting point. To the layman cast iron is that and nothing else, but to the engineer there are as many grades of cast iron as there are of gold, and poor cast iron is about as good for motor cylinders as a gold brick is for conversion into coin of the realm. If it contain an excess of sulphur, phosphorus or other impurities, the result will be a casting that is brittle and worthless. Thus to insure satisfactory results the material must be given a preliminary testing, and this is true of all the material that enters into the construction of a high-grade motor, from beginning to end. It would be impossible to detail here the thousand and one precautions that must be taken in every step of the processes involved, if the result is to be in accordance with the plans of the engineer. The accompanying illustrations, which are from photographs taken at the plant of the Lozier Motor Company, serve to show two of the steps in the building of a high-grade motor that consume a great deal of the time of high-priced mechanics. One of these is the grinding of the crankshaft journals to a few thousandths of an inch in a machine especially built for that purpose, and the other shows the assembly of the various finished parts into the motor as a complete whole.



MOTOR ASSEMBLY ROOM OF LOZIER MOTOR COMPANY.

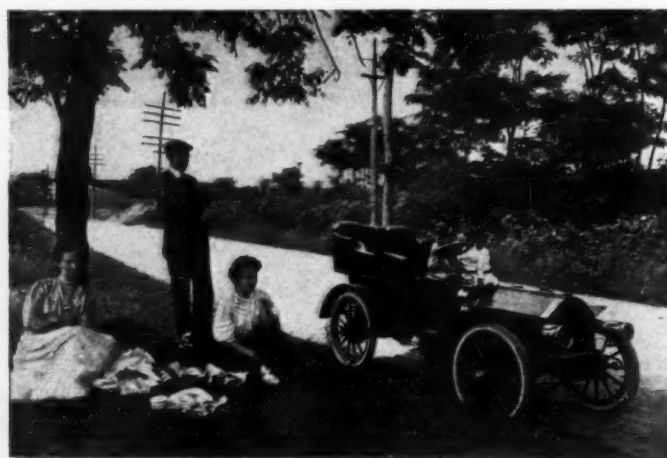


WHERE THE WINDING HIGHWAY CROSSES THE MORRIS CANAL AT TOWACO.

EVANS is an automobilist. This in itself is not a very serious accusation. The trouble is, however, that he is a Jerseyite—lives in New Jersey, the land of the mosquito—the State where they won't let you use non-skids—the State where the automobile laws are shocking beyond words—the stronghold of the Oil Trust that rockets the price of gasoline—and there are other things, too. When Evans moved over there from little old New York with his automobile and the rest of his possessions, including his family, his sorrowing friends and relatives bade him farewell sadly, and, after he had gone, fought off the depression following upon his departure.

When Brown one day found an envelope in his mail, addressed in Evans's imitation-of-a-road-map hand, he hesitated about opening it. "Perhaps it'll upset me for the day's business," he thought. But finally he read the letter.

First he looked relieved, then puzzled, and then incredulous; for Evans actually said he liked New Jersey—*liked* it! "If you don't believe it, come over and spend a couple of days with us and I'll hike you round some of the beauty-spots in my old car," wrote Evans. Brown hesitated, but at last asked Evans to set a date. Evans wrote: "Meet you at the 7.50 in Elizabeth with the car Sunday morning. Bring along Mrs. Brown and the two Brownies." The message was brief and at once to the point.



HUNGER OVERTOOK AND CAPTURED US NEAR DENVILLE.

So it happened that Brown and Mrs. Brown and the two Brown boys met Evans and his wife and six-year-old boy on the platform of the Elizabeth station on Sunday morning, bright and early. Evans bundled all the Browns into the tonneau and got them settled. The engine snorted, the horn honked, the car started, headed east, and the voyage of discovery had commenced.

Every one was so busy talking and trying to listen at the same time that it wasn't until Westfield was reached, six or seven miles from Elizabeth, that the party, as a whole, awoke to the fact that it was being propelled through New Jersey scenery at the rate of—well, whatever the legal rate is. At Westfield a sharp

turn to the right was made into Westfield avenue, and at Springfield, five miles from Westfield, another sharp turn to the left was made into the Morristown Pike. A smooth, rolling road, with lovely bits of hill and valley scenery on either side, led along for four miles to Chatham and two miles more to Madison.

The next five miles—two to the Morris County Golf Club and three to Morristown—led through scenes extremely upsetting to the man who would like to own a country residence, but can't afford it. The road is simply a smooth driveway between the most delightful country homes—Italian villas, English residences, Colonial houses, modern castles—estate after estate, garden after garden, sweep after sweep of smooth, velvety lawn, till one feels as if he were trespassing on a millionaires' colony. Piously inclined millionaires were starting for church; at the great front doors stood carriages and automobiles, and into them, with Sunday decorum, were climbing beribboned and beruffled ladies and frock-coated and top-hatted men—all looking intensely churchy. Even the chauffeurs looked solemn and law-abiding; they wore no goggles and their collars were clean. At the links of the Morris County Golf Club—a beautiful estate and a delight to the heart of the golfer—a lot of flanneled enthusiasts were quietly swishing little white balls into flag-marked holes in the ground—when they didn't miss them—but they seemed only to add to the Sunday quiet of the atmosphere.

Finally the panorama of palaces ceased and Evans ran his car into Morristown. Really, the Morristown automobilists ought to wake up and erect a few sign-posts for the guidance of brother automobilists. You go into the town by the main road, which leads along the left side of the big public square, and if you are a normal human being you'll go right ahead, past the square. Now, if you're bound for Lake Hopatcong, or some of those beautiful Jersey spots, where nearly everyone goes who automobiles in that direction, you must turn to the right, following the square, and take the road that leads off from the opposite side of the square, running in the same direction as the road that took you to the square in the first place.

Out of Morristown the road winds and bends in and out among the trees and the country is quietly beautiful. Four miles of this brought the car to a picturesque bit, to the left of the road. In the foreground, just over the wire fence, is a round pond, with a tiny island in the middle; beyond and beside the pond, a series of barns and stables, clean and white; nearer

the road, a low, bungalow-like house, with wide verandas and awnings; and, as a background for the whole, the tree-clad hills, whose dark green made an effective setting for the dazzling white of the buildings.

"Gee!" ejaculated Brown, "whose joint is that?"

"That?" replied Evans, "that's where Homer Davenport lives—the cartoonist."

"You don't say! Let's photograph it."

"Ladies on the veranda. Maybe they wouldn't like it. I'll take the photograph if you'll go and find out if they'll let us."

Brown walked to the most obvious gate, and was confronted by a sign: "Please Use the Other Gate." Wondering if the people on the veranda were snickering at him, he trudged back to another gate and entered. Now, Mr. Davenport probably knows why that sign was put up, but poor Brown doesn't. He got into a maze of wire netting fences and fowl-yards and little gates and hen-houses till he perspired in his efforts to get out. Finally he saw an opening, dashed out and made his way across the smoothly-cut lawn to the veranda. His meek request was courteously met with the information that doubtless Mr. Davenport wouldn't object.

"There he is now, coming around the pond."

A big, sunburned man with an old straw hat on his head, in his shirt-sleeves, looking for all the world like a contented farmer taking a stroll around his place. Was that Davenport? Must be; no one else around.

"Sure. Go right ahead. Photograph all you like."

Brown said "thank you," and made for the car. But this time he did *not* "use the other gate."

Four miles further on, after passing Mount Tabor, a stop was made for lunch, just beyond Denville. At Denville there is a hotel that looks as if it might be one of the many places where "Washington spent a night," but it isn't. But it's a place where uncounted automobilists have stopped and eaten and drank, and outside is an old iron pump where many and many an automobilist has stopped and filled up his water tank—that is, the tank of the car. The autoist's personal tank is usually filled inside.

A sharp turn to the right past the faithful old pump, and the car was speeding down the Rockaway road toward Parsippany—a typical country store with a few houses near it—and the great reservoir whence Jersey City derives its water supply. At Parsippany Evans turned off to the left, onto a road skirting the reservoir and crossing an iron bridge. It was on this road that the first, last, and only mechanical trouble of the day arose. The engine, a two-cylinder vertical, began to hiss fiercely at every stroke.

"Oh, Lord!" groaned Evans, "there goes an inlet valve."

In two minutes the cap was off the valve chamber of the forward cylinder; the valve stem was down and out of sight. On



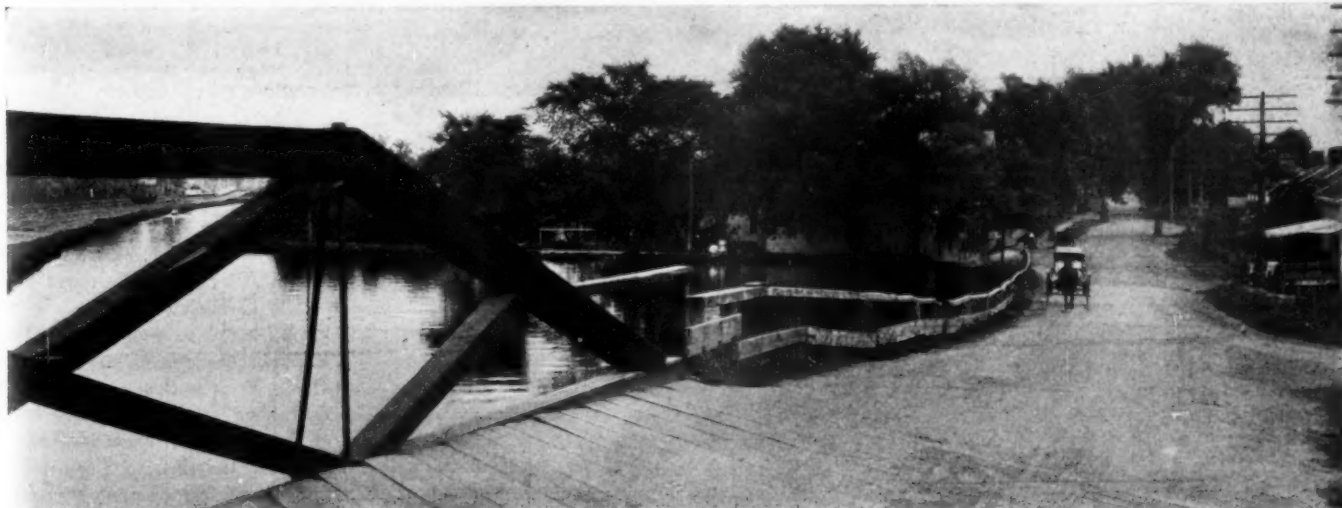
IN FRONT OF ARTIST DAVENPORT'S FARM NEAR MORRISTOWN.

top of the cage was the spring, in two pieces. Evans picked them out tenderly, cussed each one separately when it was safely out, and reached for the pin that should have been there. Nothing doing. Out came the cage and then the valve. "Thank goodness, it's all right," said Evans. But the pin? Maybe it was on top of the piston, waiting a chance to chew grooves in the cylinder walls. Horrible possibility! But Evans, with delicate touch, fished around in the valve passage with a pair of pliers, and triumphantly dragged forth the tiny steel pin.

"Hooray!" said he, fervently.

Evans fished out of the box a new valve spring, put there for just such an occasion, and in fifteen minutes from the first hiss the engine was chugging away as merrily as ever.

Four miles from Parsippany, a half-dozen houses and a hotel are called Oklahoma. A few miles further on the old Morris canal was crossed on one of the many very disconcerting bridges that carry the roads over this quaint old waterway. The road, running almost parallel with the canal, takes a sudden turn, almost at right angles, and at the same time shoots up—Evans said it was nearly perpendicular, but he exaggerates sometimes—and onto the hump-backed bridge. The process is reversed on the other side, the road pitching suddenly down and turning back in



MOUNTAIN VIEW DOESN'T MEAN THAT MOUNTAINS ARE VISIBLE, BUT THE WOODED CANAL BANKS PLEASE THE EYE.



THE PUMP AT THE CROSS ROADS AT DENVILLE.

the original direction. These canal bridges are really dangerous places if the car is not very carefully driven.

At a spot in the middle of the fields called Towaco a stop was made to photograph one of these bridges—the mildest specimen encountered—and to inspect and photograph one of the inclined planes that are used in lieu of locks on the Morris canal. The canal is brought to a place where the rising country would, ordinarily, require the construction of locks and the continuance of the waterway on a higher level. Here they simply stopped digging, walked up the hill a few hundred yards and started another canal on the higher level. The ground between the two sections of canal was smoothly graded, a very broad, heavy steel track laid, reaching to the bottom of the canal both above and below, and a ponderous truck placed on the rails. When a barge comes up it is floated over the truck, which is run down under water; the barge is made fast to the carriage, and is hauled high and dry overland, and at the top the truck dips down again into the high level canal till the barge floats, and that's all there is to it. The power for hauling is supplied at this particular plane—Plane No. 10, East—by water taken from the high level canal and led, through a wooden flume, to a water wheel in a power house; the huge endless steel cable is hauled by a drum slowly turned by the wheel.

At Mountain View—so-called because there is no mountain in sight and nothing in particular to view—the Pompton road was taken with a turn to the right, and just as the odometer indicated three miles from Mountain View the car rolled out on the bridge over the Hackensack river at Little Falls.

It is really a beautiful spot. The river runs through a deep rocky gorge, spanned by the highway bridge perhaps fifty or sixty feet above the water. Above, a dam has rather increased than lessened the natural beauty of the rapids—or falls, as they seem



WHERE THE HACKENSACK FLOWS BELOW LITTLE FALLS.

to be called—and a huge factory building on the bank looks as if it grew out of the rocks. Below the bridge the sides of the gorge are quite wild, innocent of buildings. A massive stone bridge crosses the river a few hundred yards below the highway bridge and carries the canal over the gorge.

The Pompton Pike took the car into beautiful Montclair. From the heights of Upper Montclair it is possible, on a clear day, to see New York, some 25 miles distant.

At Bloomfield the party was hailed by a hospitable friend of Evans, and everybody was treated to welcome refreshments on a cool veranda.

Elizabeth. Everyone began comparing notes. "Well, how about New Jersey?" asked Evans, as the car drew up at the station platform, twenty minutes before train time. And it was agreed that nothing in the shape of a poor road has been seen, except in some of the village streets; that no one had seen even a single stray mosquito; that the country was picturesque and devoid of monotony. In fact, Brown's sorrow for Evans vanished completely, and he even caught himself regretting that he must return to his little flat in a wilderness of brick walls and glaring pavements. Then the train came in.

"Good-bye, old man," said Evans. "Suppose there won't be any use asking you to come over and take another trip, will there?"

"Just try it. And as soon as you like," said Brown, jumping for the last car.

Towns and villages and distances:

0	Elizabeth.	35	Parsippany Store.	Reser-
4	Cranford.		voir.	
6	Westfield.	37	Boonton.	
11	Springfield.	39	Oklahoma.	
16	Chatham.	46	Mountain View.	
18	Madison.	49	Little Falls.	
21	Morris County Golf Club.	52	Cedar Grove.	
23	Morristown.	54	Montclair.	
27	Davenport's Farm.	58	Bloomfield.	
29	Mt. Tabor and Denville Sta-	63	Irvington.	
	tion.	68	Elizabeth.	
31	Denville crossroads.			

SOME IGNITION DON'TS FOR THE NOVICE.

Ignition is a subject of interest, especially to the amateur driver, and these don'ts from J. D. Maxwell, vice-president of the Maxwell-Briscoe Motor Company, are well worth keeping in mind:

Don't forget to test the batteries and note that they are strong; don't guess.

Don't screw down battery connections with your fingers, use pliers.

Don't let the various electrical connections become corroded, but keep them clean. You cannot get a good connection with dirty terminals.

Don't run an accumulator or storage battery till exhausted.

Don't make electrical connections by using simply a stripped wire, always use a regular battery terminal, and see that the wire is securely fastened to the terminal. It pays to keep your ignition system up.

Don't allow your electrical wires to become oil soaked.

Don't use a coarse file to true the vibrators, platinum is expensive. Use only a dead smooth file, and use that sparingly.

AIRSHIP "PATRIE" VISITS PRESIDENT.

PARIS, Aug. 15.—A striking example of the utility of steerable balloons was given last week when the French military airship *Patrie* sailed from Meudon to Rambouillet, thirty miles away, on a visit to the president of the Republic. President Fallières was waiting in the grounds of the chateau to receive the four officers on board the airship. After an hour's interview, during which the *Patrie* was anchored above the grounds, the officers mounted on board, the motor was cranked and the return journey made at a speed of 37 miles an hour. The *Patrie* will shortly make the long journey to its military station on the eastern frontier, traveling the entire distance under its own power. It is intended to ask for funds to build three more airships of the *Patrie* type this fall, and there is little doubt but that the necessary appropriation will be forthcoming without much delay.

CLUBS PREPARE FOR SEPTEMBER DOINGS

JOINT MEETING OF ALL BAY STATE CLUBS.

BOSTON, MASS., Aug. 19.—It has been voted by the directors of the Massachusetts Automobile Association that it is advisable for the members of all constituent clubs to get together and decide what can be done for the benefit of the fraternity as a whole, as well as for the interests of sport, and it has therefore been decided to hold a joint meeting which will take place from Friday to Monday, September 6-9, at the Hotel Wentworth, Newcastle, N. H. The meeting is to be held on the ground of the famous peace conference between Russia and Japan, and it is expected to have a representative showing of the Massachusetts State Automobile Association. A committee, appointed by the directors, has planned a run, the arriving time being Friday night, when suitable entertainment will be provided. This is to be followed on Saturday by a baseball game between members of the different clubs, and on Sunday there will be a short run and a clam bake, while on Monday the management of the hotel will give a gymkhana for owners only. On Saturday night there is to be a banquet at which some prominent down east autoists will speak. Particular attention is to be paid during the course of the meeting to legislation, which is necessary for the safety of the autoist and the pedestrian, and the so-called Light Bill will come in for an extended discussion. It is expected that the Bay State Automobile Association will send a large delegation, while the majority of the other clubs from all parts of the State will be suitably represented. Frank C. Hall, manager of the Hotel Wentworth, and who is a member of the Bay State Automobile Association, will make special preparations for the reception of the visitors.

PITTSBURG CLUB RACES SEPTEMBER 9 AND 10.

PITTSBURG, PA., Aug. 19.—The Automobile Club of Pittsburg has fixed upon September 9 and 10 as the dates of the annual races to be held here. Owing to the fact that the Tri-City Fair is held at the track during the preceding week, the meet is to be held at the Brunot's Island track and there will be five races each day, Oldfield having been secured to make a new attempt on his previous record of 52 seconds for the mile. D. P. Collins, 452 Seventh avenue, has charge of the entries, and the program as thus far arranged is as follows: The first day is to be opened with a fifty-mile race for fully equipped touring cars for a \$100 cup, and is to be followed by a five-mile event for all cars up to 20 horsepower, the prize being a \$50 cup. Then comes a twenty-mile race for four-cylinder gasoline cars, followed by a ten-mile special match race for special racing cars, and winding up with a fifteen-mile handicap for four-cylinder cars, all to be 1908 models. The second day is also opened with a fifty-mile event for stock touring cars, followed by a fifteen-mile handicap for stock runabouts costing up to \$5,000, the prizes being \$100 and \$50 cups in the two events. The third race is a twenty-mile event for four-cylinder cars and is followed by a special match race for stripped racing cars at ten miles, the prizes in both this and the fifth race, which is a twenty-mile event for six-cylinder cars only, being \$100 cups. The rules permit the removal of mufflers where cars are not provided with cut-outs.

ALAMEDA COUNTY AUTO CLUB BANQUET.

OAKLAND, CAL., Aug. 16.—One hundred members of the Alameda County Automobile Association were the guests of the Criterion Café at Fruitvale, a few nights ago, and had the best chance to forget, even tire troubles, that they have enjoyed in a long time. Twenty odd machines left the corner of Broadway and Twelfth street at midnight, all well loaded with passengers, and an hour later they sat down to an elaborate spread provided for their benefit. President R. S. Cole of the association officiated.

MOTOR BOATERS AND AUTOISTS TO COMBINE.

INDIANAPOLIS, IND., Aug. 18.—Due to the fact that they have many interests in common and could achieve their ends much more satisfactorily as one body, the Indiana Automobile Club and the Indiana Motor Boat Club, both having headquarters in Indianapolis, have combined, the plan having been favorably acted upon by a committee of the two organizations. The Automobile Club of Indiana, which is allied with the American Automobile Association, and gives its members all the privileges of that body, is booming its membership and expects to reach the 2,000 mark by the end of the year. The combination with the boat club makes an addition of 100 members in one block, and better enables the combined body to carry out a plan long pending with both of them—that is, the erection of a large and commodious clubhouse. The Motor Boat Club is at present erecting a clubhouse on the river at Broad Ripple, which will shortly be completed. The headquarters of the automobile club are at present in the Denison Hotel.

In addition to its good roads campaign and other works for the benefit of autoists generally, the club is at present actively getting after Indianapolis' young vandals who delight in tinkering with machines, scattering glass along the roadway and the like, and have already secured a number of convictions.

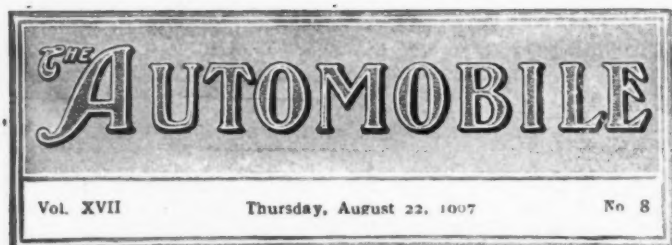
QUAKER CITY MEET FOR POINT BREEZE TRACK.

PHILADELPHIA, Aug. 19.—The Contest Committee of the Quaker City Motor Club has changed the date of its meet, scheduled for August 31, to Saturday, September 7. The committee also decided that Belmont track, although it possesses a superior surface to Point Breeze, is too far from the city and too hard to reach, and the latter track will be utilized. The 100-mile race, which will be the star event of the program, will be for the championship of Pennsylvania, and already quite a number of entries have been received from the owners and representatives of fast cars. Many of the high scorers in recent 24-hour events will also be here for the event. Two 25-mile races will be the curtain raisers. The first will be for stock runabout, and was put on in response to several requests from owners of certain "low, rakish, piratical" craft in that class, each of whom believes that his car can sprinkle its dust on all the others. The second 25-miler will be for stock touring cars, "all on." Both these events have already filled well.

Chairman Johnson, of the Quakers' Contest Committee, is endeavoring to get together a crowd to attend the fall meeting of the Pennsylvania Motor Federation, at Bedford Springs, sometime in September. The officers of the Philadelphia and Germantown clubs are also working to the same end. No specific date has been set for the Federation meeting, but it is proposed to have it on some Sunday in September, allowing Saturday for the run from the various cities to Bedford and Monday for the return.

PORTLAND AUTOISTS TAKE A MOUNTAIN RUN.

PORTLAND, ORE., Aug. 16.—Members of the Portland Automobile Club held an enjoyable outing this week in the shape of a mountain run. The latter was to a place known as Welche's Resort, in the heart of the Cascade Mountains and about fifty miles from Portland. It is on the road to Mount Hood and, for the most part, the roads are good, though many of the grades are very steep. The trip can be made in a car in about five hours, so a number started earlier in the day in order to have an opportunity to cast some of the mountain streams for trout, the main body leaving in the afternoon. The trip was planned for a week previous, but was found to conflict with the endurance run and was accordingly postponed.



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Value of a Uniform Basis of Rating for Contests.

Interest soon wanes in anything that is not well understood, and the public wants to be amused rather than instructed. Hence, the extremely limited amount of popular favor that has been extended to events conducted on a scientific basis, in which every possible factor has been taken into consideration. It is quite evident that a race in which, after an exciting finish, the apparent winner is robbed of its honors and the latter are awarded to a car that came in a poor third, can hold but a small amount of interest for the spectator. He wants to see a car win with his own eyes, and, knowing little of abstruse mathematics and caring less, such awards savor more of injustice to the winner than a mathematically exact consideration of all the factors concerned. In brief, the man in the street wants to see actual victories, rather than a performance which means nothing until logarithms have been called into play to decide the result.

For this reason the suggestion of the Importers' Automobile Salon that a joint committee from such representative organizations as the Association of Licensed Automobile Manufacturers, the American Motor Car Manufacturers' Association and the Automobile Club of America, be appointed to consider uniform methods of rating cars in all tours, runs and contests, is one that should meet with favor from all concerned. In the interim, it is recommended that simple horsepower basis be employed, and this also is a suggestion of great value. The sooner such a uniform code of regulations as that proposed is adopted the better it will be for the industry at large.

But the actual conduct of these contests and the enforcement of the rules governing them, in our opinion, should be left to disinterested bodies. Therefore, after the conditions have been agreed upon by the various manufacturers—at least by a majority of them—the contests should be managed by the clubs of the American Automobile Association and by the national organization itself, when it comes to the holding of the Vanderbilt cup race or the one big tour of the year. With New York City as its field of operations, the Automobile Club of America will have an advantage over the other clubs of the country in making its events stand out prominently.



In the Founding of a Great Industry, Grown Suddenly. To the general public, whether automobile wise or not, it doubtless appears as if the American industry were passing through a crisis. It must be admitted that, to the uninformed, a succession of financial troubles, in the face of the prevailing prosperity, certainly does not seem to augur well for the future permanency of the industry, nor for its present economic solidity.

To a certain degree, the automobile industry is an entirely anomalous growth of the past half decade. In that short period it has assumed proportions entitling it to rank with others of many years' standing, and it is not strange that its career thus far has been marked by conditions impossible in other fields. Though the comparison may not be altogether just, in a certain sense the business of making and selling automobiles has grown like a mining settlement, springing into being over night, advancing by leaps and bounds, and at the end of a few years presenting all the outward appearances of an old and well-settled community, but actually crude and in the first stages of development. This appears to be the present situation of the automobile industry, which, having passed through the constructive period, is now entering upon a second stage in its growth, that is destined to leave it firmly established.

So far as the failures themselves are concerned, it is not difficult to discern their moving cause, nor need their number or close succession give rise to any apprehension whatever, even though two of them are of unusual prominence, as well as being members of an association whose boast has long been that it represented the backbone of the industry—but one of its members ever having gone under, and it was a failure before it was admitted. Investors have been attracted by promises of huge dividends, and, disappointed by the reality, have stranded their concerns by withdrawing support; inexperienced concerns have entered the field, while mismanagement and unsound engineering have contributed their quota to a list that is not over large.



Racing on Highway Without Proper Protection.

To those who think that the wishes of William K. Vanderbilt, Jr., should be utterly disregarded and a race for his cup held on American roads, without the protection of a militia guard, attention is called to the fate of the Criterium of France, conducted by the Automobile Club of France. Because of a large number of fatalities, resulting from the absence of military, the Government terminated the affair on its second day. Combined with the Criterium of France was the Coupe de la Presse, the latter event subsequently being successfully held over a guarded course with no accidents of any kind.

Mr. Vanderbilt is to be commended for insisting that his cup shall not be raced for except with military protecting the on-lookers from their own dangerous curiosity. Furthermore, it is a certainty that the Automobile Club of America has no desire to take away from the American Automobile Association the honor and profits from this big race, as long as its holding must be over unprotected highways.

The efforts of those who, for selfish reasons, have endeavored to make it appear that the cup donor and those associated with him have not been sincere in trying to conduct a 1907 race will find that their dishonest criticism will only react upon themselves.

SOME MORE VANDERBILT CUP COURSES.

Though it is somewhat late in the day to come forward with courses for the Vanderbilt Cup race and obtain the consent of the donor of the cup to the holding of the event in the far West, the latest proposals are from Nevada and Colorado. Of course, there is nothing to prevent the automobilists of those States from conducting road races of their own, but they seem to think that the Vanderbilt event is far more desirable.

What the Gold Diggers Can Offer.

The *Examiner* prints the following:

CHICAGO, Aug. 17.—If "Tex" Rickard and Capitalist Coburn have their way about it, the Vanderbilt Cup race of 1907 will go to Nevada. Rickard, Coburn and a party of automobilists met at the Annex last night. The upshot of the pow-wow was a decision on the part of Rickard and Coburn to start for Goldfield to-day and rush the plans through. They propose to raise \$50,000 for the purpose, and are positive they can do this.

The Nevada course will be twenty-eight miles in length, and wide enough to permit ten or more cars to race abreast. The course circles a dry lake, and is perfectly level, the turns being about three miles long. Rickard proposes to build a great amphitheater in the center, and spectators with field glasses will be able to watch the race from beginning to end.

Messrs. Rickard and Coburn will have photographs made at once of the course and will forward them to A. R. Pardington, acting chairman of the Racing Board of the A. A. A., together with a definite offer to hold the race. They point out that population considered the mining camp of Goldfield has more automobiles than Chicago and that faster time is made there daily than on most of the race tracks in the country.

The motorists present at the meeting last night thought that the high altitude would have an effect on the drivers and this is one of the points that will have to be considered. While Rickard and Coburn will push the matter, the absence of W. K. Vanderbilt, Jr., and Racing Chairman Thompson in Europe is apt to have a bad effect on the outcome.

What Colorado Can Supply.

DENVER, COLO., Aug. 17.—G. A. Wahlgreen, editor of *Motor Field*, has "wired" the Commission on the Vanderbilt Cup race, which New Jersey has repudiated, that he can give them a course at Denver, either from Denver to Colorado Springs and return, a distance of two hundred miles, or a course ten miles east of the city, guaranteeing the best of patrolling by State or Federal troops. Mayor R. W. Speer, who has championed the cause of good roads for the benefit of automobilists, not only in Denver, but in all points out of Denver, is co-operating with Mr. Wahlgreen in his efforts to furnish the contestants with a safe course. Governor Buchtell of Colorado also favors the proposal. The Twenty-second Infantry, now at Fort Logan, may be used.

Western people are interested in constructing a boulevard on the route from Kansas City to Colorado Springs, like the old Roman roads, for eastern and western automobilists. The road is intended to connect with the national highway.

THOMAS B. JEFFERY STARTS A SIGN CAMPAIGN.

KENOSHA, WIS., Aug. 17.—Next to improvement, Wisconsin roads need signboards more than anything else, and as little or no progress has been made thus far in properly marking them, Thomas B. Jeffery, of T. B. Jeffery & Company, makers of the Rambler automobiles, has undertaken a progressive campaign for this purpose, having set aside a fund of \$25,000 to carry it out. He will not confine attention to Wisconsin, but will also mark Illinois roads, and the Rambler agents in both States will undertake the work of erecting the guide posts immediately. The signs will be placed at every intersection, as well as at every danger point, and such signs will state the nature of the danger, while many of the Illinois signs will also give the legal speed limits.

THE STORY OF AN UNPAID 24-HOUR PRIZE.

Before the finish of the 24-hour race at Brighton Beach, N. Y., August 9-10, W. H. Pickens, manager of the United States Motor Racing Association, endeavored to disgorge \$1,000 in bills of various denominations, but several officers of the Long Island Automobile Club, whom he asked to receive the big prize of the "twice around the clock race," declined becoming a depository for the twenty-four hours which would have to elapse after the conclusion of the race before the prize money could be paid to the winner. Therefore, Mr. Pickens redeposited the money with President Joseph M. Gaites, of the United States Motor Racing Association.

It happens that Messrs. Gaites and Pickens are also engaged in the theatrical business, and recently arranged to present a version of "Raffles," the famous cracksman. In the production of the play containing this famous personage, it seems that a copyright misunderstanding has arisen, and resulting from it a suit which has made necessary a temporary deposit of a round sum of money. Thereupon, the funds of the United States Motor Racing Association were drawn upon, and as late as Wednesday morning Montagu Roberts, the winner of the 24-hour event, was still looking for his prize money, though it was stated that the matter would be attended to in the next day or so.

As soon as Acting Chairman Pardington heard, Tuesday noon, of the failure of the promoters to straighten out the prize money, a formal complaint having been filed by the Harry S. Houpt Co. in behalf of Roberts, he immediately endeavored to get into communication with Messrs. Gaites and Pickens, but failed to do so owing to their absence from the city.

Prompt punishment will be meted out to the promoters unless the unpaid prize money and cups are attended to at once. In any event, Roberts will not lose his prize money, for Mr. Bowles, of the Houpt Company, says he will pay the plucky driver out of his own pocket if the United States Motor Racing Association fails to meet its obligations. It is the general belief that since the matter has been brought to the official attention of the A. A. A. Racing Board, the U. S. M. R. A. will quickly comply with the demand made for a prompt settlement of all prizes.

MAXWELL'S SEALED-BONNET PERFORMANCE.

The performance of the 16-20-horsepower Maxwell car, driven by Charles W. Price, has rolled up such a tremendous mileage that it now stands above all the other sealed bonnet performances, the distance covered being close to 5,000 miles. The seals were originally affixed June 28, and since then Price has successfully competed in various sealed bonnet contests, running the car from city to city to do so, competing under the ominous "No. 13." It was run in the Chicago reliability contest, the Peoria 6-hour race, the Chicago 24-hour race, and was then driven in the A. A. A. tour, again returning from New York to Chicago. The seals were affixed by Charles P. Root, chairman of the Contest Committee of the Chicago Motor Club, and David Beecroft, chairman of the Technical Committee of the same organization. They were also frequently examined by the same committeemen, who have gone on record as certifying to the genuineness of the performance throughout. The car's total mileage is given as 4,788.6. After a rest it is Price's intention to continue through the West and South, probably going clear to the Coast.

P. R. R. TO INSTALL MOTOR CAB SERVICE.

ALTOONA, PA., Aug. 19.—Though it has not been officially announced as yet, the Pennsylvania Railroad has made all preparations for substituting motor cabs for the horse-drawn hansom and coupés so long used in its service at the principal stations. What is even more significant is the fact that it is going to build its own motor cabs, arrangements being about completed to construct them at the Juniata shops at Altoona. One department of the shops will be devoted entirely to their construction.

TORONTO HOLDS A SUCCESSFUL ORPHANS' DAY.

TORONTO, ONT., Aug. 17.—Instead of being a fixed celebration, Orphans' Day has come to be regarded as a sort of movable feast, the Ontario Motor League making the date of its annual event on Wednesday last, when an unusually successful observance of the new institution was held. Some 500 children from the Protestant Orphan Home, the Girls' Home, the Sacred Heart Orphanage and the Children's Aid Society were treated to a day's outing that they will long cherish the memory of in times to come. It was a bright spot such as seldom enters into the lives of these waifs. Sixty cars gathered at the quarters of the Ontario Motor League, from which they were dispatched to the various homes to receive their burdens of happy children. This accomplished, the procession lined up at 11:30 A.M. and, after passing through a number of the principal streets of the city, wound up at Scarboro Beach Park at 1 o'clock.

The weather man had done his best and conditions could not have been better. The cars were gaily decorated and each urchin was presented with a small flag with which to help celebrate, so that the passing of the procession was a sight that attracted large crowds along the entire route. The arrangements all went smoothly until the arrival at the park, where it was found that the "grub wagon" had defaulted in some way or other, and what is an outing without something to eat, particularly when one is gifted with the appetite that goes with but ten or twelve summers of life? The lunch had been loaded on a motor truck, which was to have preceded the parade to the park, but there was no sign of it on arrival there. It had gone astray, but was soon located and the delay only served to increase the edge on the waiting appetites. Once the important ceremony of disposing of the edibles had been completed, the children were given *carte blanche* to enjoy themselves in their own way, every show on the grounds being open to them, the park management concluding the entertainment with a representation of the San Francisco earthquake. Toronto's business interests contributed liberally to the celebration, the refreshments all being donated by various local houses, even in-

cluding a supply of souvenirs, consisting of a doll for each girl and a rubber ball for each boy. The affair was excellently managed by the Motor League, the special committee consisting of the following members: Noel Marshall, William Dobie, R. J. Christie, T. A. Russell, G. H. Gooderham, M. C. Ellis, H. C. Osborne and Harton Walker.

A. M. C. M. A. SHOW SPACES TO BE DRAWN AUG. 30.

All applications for space at the eighth annual show of the Automobile Club of America, to be held at the Grand Central Palace October 24-31, and in which members of the American Motor Car Manufacturers' Association are the chief exhibitors, must be received at the office of the latter association by Wednesday, August 28, as the drawing for spaces is scheduled for two days later and will take place at the association's headquarters, 29 West Forty-second street. At the show itself a new system of admission for exhibitors and their assistants will be inaugurated, and as it is to be used at all automobile shows this season its first trial at the Palace will be watched with interest. It is known as the double check system and consists of the use of a badge and ticket, which will be supplied exhibitors as applied for. The badge is not good for admission alone, but must be shown and the ticket delivered at the door. On passing out, showing the badge entitles the holder to a return ticket, which must again be given up on re-entering.

PREPARATIONS FOR THE IMPORTERS' SALON.

An entirely new scheme of decoration is to be supplied for the Importers' Automobile Salon, to be held in Madison Square Garden, December 28-January 4. The S. R. Ball Company has been given the contract and promises something so novel that the well-known interior of Madison Square Garden will not be recognized by its oldest frequenters.

Tuesday, December 31, and Friday, January 3, have been decided upon as the days when the \$1 admission will be charged. On the other days the regular 50-cent fee will be in effect.



LINING UP THE ORPHANS' DAY PARADE IN QUEENS PARK, TORONTO, PRIOR TO THE START.

GASTON PLANTIFF'S NEW YORK RECORD.

Ford runabouts and "sixes" to the value of \$190,059.43 constitute the enviable July record of Manager Gaston Plantiff, of the New York branch of the Ford Motor Car Company, Detroit, Mich. And that is only one month, so that Manager Plantiff holds other records as well. During the ten months dating from October 1, 1906, the beginning of the Ford fiscal year, he has disposed of some \$920,000 worth of Ford cars. This means 1,400 runabouts and 130 six-cylinder touring cars, nearly 1-7 of the entire Ford output for the year. Six weeks still remain of the latter, and in them Mr. Plantiff is confident that he can pass the million-dollar mark, thus establishing another record.

In speaking of his achievements in this line, Mr. Plantiff says: "I believe this record has never been equaled in the automobile business, for it must be remembered that with us July deliveries mean July sales. Nothing is carried over, and only those sales are included in the month's report which have been made and delivered in that month. This is not the case in a great many instances, many concerns concentrating their deliveries in one or two of the spring months.

THE MORRIS PARK MOTORDROME.

The Morris Park Motordrome Club, of New York City, is to revive automobile racing on the once-famous Westchester running course. The Morris Park property is owned by the Fidelity Development Company, of which J. G. Robbins is the president, and he will also occupy the same position at the head of the new racing club, with Walter C. Allen as its secretary.

Alfred Reeves, well known as a promoter of many successful meets in the metropolitan district, has consented to serve as chairman of the race committee, assisted by A. B. Tucker as racing secretary, while A. F. Camacho will be the track superintendent, thus insuring a most competent trio for the competitive branch of the enterprise.

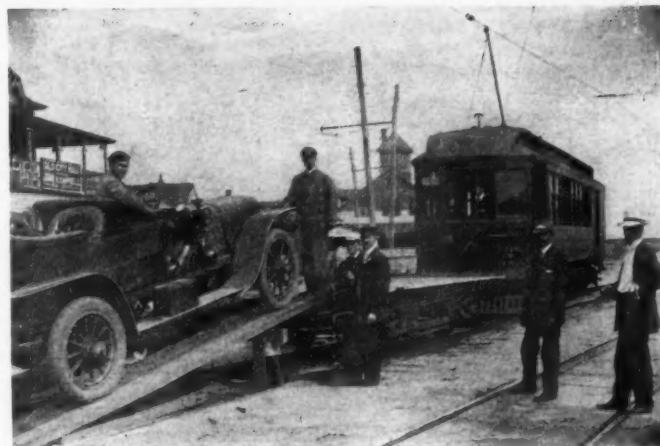
The first meet is to be a 24-hour race, September 6-7, preceded by several shorter races and a series of gymkhana games. A number of the most prominent trade and racing men have been asked to officiate at the 24-hour track race, and there will be special lighting of the track for the night hours and special treatment of the track by extra banking and thorough oiling for the races. The new organization promises to leave no stone unturned to make the races to be held at Morris Park the most notable, both in entries and officials, and the most carefully conducted of any ever held in or near the city.

A CHADWICK AGENCY FOR CHICAGO.

PHILADELPHIA, Aug. 19.—H. B. Larzelere, of the Fairmount Engineering Works, has just returned from Chicago, where he located the Chadwick agency with the Hamilton Automobile Co.



MORRIS PARK TRACK IS NOW HAVING ITS NEEDED SHAVE.



LOADING THE STEVENS-DURYEA BIG SIX ON THE FLAT CAR.

VISITING ATLANTIC CITY EN ROUTE TO CAPE MAY.

OCEAN CITY, N. J.—Aug. 19.—Almost every tourist going from New York City to Cape May has found it impossible to take in Atlantic City on the way without making a very long detour to avoid the bad roads between Atlantic City and Ocean City. The distance, as the bird flies, from Somers Point, just below Atlantic City to Ocean City, directly across the mouth of the inlet is 2 1-10 miles, but the distance by the road is 27 sandy miles.

The Shore Fast Line Trolley Company, July 2, started running a trestle and dike route from Somers Point to Ocean City. August 3 was opened up a flat car service to carry automobiles across the two miles of trestle. The first car to cross was a Stevens-Duryea "Big Six," driven by S. H. Hancock. In the party were C. J. Neff, general superintendent of the electrified lines of the Pennsylvania Railroad; Frank A. Broadhead, secretary and treasurer of the Atlantic Automobile Company; A. E. Corbin, of the Stevens-Duryea Company; James C. Ash, and D. J. Jameson.

FIRE AT THE PREST-O-LITE PLANT.

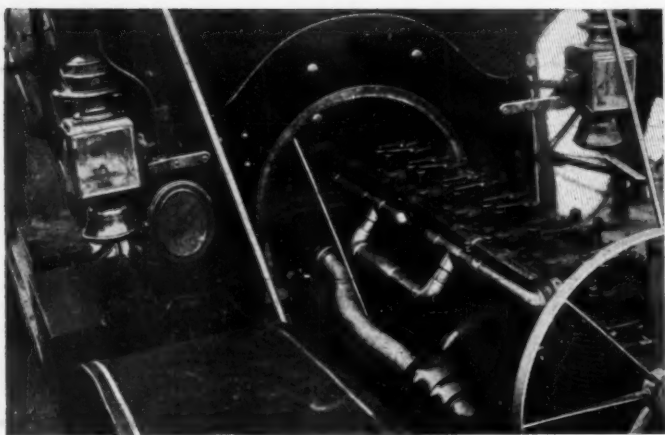
INDIANAPOLIS, Aug. 19.—One of the five factories of the Prest-o-Lite Company, in this city, was damaged to the extent of \$25,000 by fire Saturday, August 19. President Carl G. Fisher, of the company, who was at the New York City plant at the time of the fire, makes the announcement that the company's customers will not suffer any inconvenience, as thousands of charged tanks are kept in readiness for immediate delivery from any of the other main pumping stations of the company, at New York, Boston, Toronto and San Francisco. The fire was very spectacular. The heat, of course, melted the little safety caps at the end of each tank that was charged, and released the gas, which burned furiously. Fortunately, no one was killed or even seriously injured. The Indianapolis plant will be reconstructed immediately.

STOCKBRIDGE TO BECOME A WHITE STEAMERITE.

PHILADELPHIA, Aug. 19.—Frank W. Stockbridge, formerly connected with the Reo agency in New York and this city, and later in charge of the Cadillac business of the Foss-Hughes Motor Car Company here, has been secured by the local branch of the White Company and will act as factory representative in this section, looking after the agencies and sub-agencies in the eastern part of this State. Mr. Stockbridge will take up his new duties next week, going to the Cleveland factory first to familiarize himself with the latest improvements in the White system.

SPALDING TO SELL STEVENS-DURYEA IN PHILA.

PHILADELPHIA, Aug. 19.—A. G. Spalding & Bros. have secured the local agency for the sale of the Stevens-Duryea.



APPLE DYNAMO APPLIED TO A SIX-CYLINDER FRANKLIN.

APPLYING A DYNAMO TO A SIX-CYLINDER CAR.

What constitutes a rather unique illustration of the adaptability of the Apple dynamo and its flexible driving connection is shown by the accompanying photograph depicting one of these small direct-current generators installed on a Franklin six-cylinder car. It will be noticed that the large flexible shaft permits of locating the dynamo some distance from the engine flywheel from which it is driven. The automatic governor is at the shaft end at this drive and makes contact with the flywheel. Provision is made so that the necessary adjustments may be made for charging the batteries at the proper rate while the motor is running. The dynamo itself is placed well forward on the right side of the engine, while the driving shaft extends rearward toward the flywheel, as shown, both being thoroughly protected by a dust and waterproof casing, the brush end of the generator being readily accessible through a hinged end cover. The entire output of the machine is used for storing a set of accumulators, the current from which is employed both for ignition and lighting the side lamps shown on the car.

SECRETARY OF WAR TAFT LIKES THE WHITE.

One of the fixtures of the "summer capital" at Oyster Bay, ever since President Roosevelt's return to his home on June 12 last, has been two 30-horsepower White steamers, fitted with seven-passenger Pullman bodies. They are "on the job" every day in the week from 7 A. M. to 1 o'clock the next morning, and the reception they meet with at the hands of the various government officials who are conveyed in them is often amusing. "A regular government star route conveyance" is the way Secretary of War Taft characterized them to Postmaster-General Meyer, as they entered one of the cars at the Oyster Bay station last



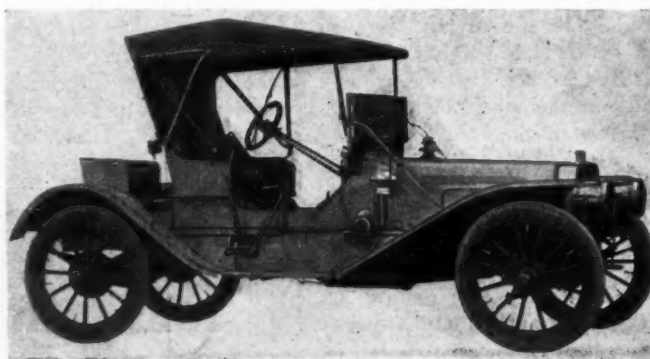
SECRETARY OF WAR TAFT IN WHITE STEAMER AT OYSTER BAY.

week. There is a sign at the gate to the presidential estate which reads "No Automobiles Allowed," but it does not apply to the two government White steamers, and in a few minutes the two cabinet officials had reached the house.

"I wish Sagamore Hill was further away from the station," remarked the Secretary of War. "Well," replied the President, "it is quite a distance from the station at Long Island City, and when you go back there is no reason why you should not go all the way in the machine." And go back all the way he did, not alone to Long Island City, but over the ferries until the Pennsylvania Railroad depot was reached. The White machines are considered absolutely indispensable to the expeditious handling of government work at Oyster Bay, and one or both of them meet every arriving train all day long, beside performing numerous other forms of service.

SPECIAL TOPS FOR HIGH-POWERED RUNABOUTS.

It is only natural that with the very general demand for the high-powered, four-cylinder runabouts there should also be a call for a special type of top adapted to this style of car. To meet this demand the Rands Manufacturing Company, Detroit, Mich., has just brought out a top of this kind, which is shown on a car in the accompanying photograph. There is no bow extending from the side of the seat to the front part of the top, thus avoiding any obstructions that would prevent free ingress and



HOW THE RANDS SPECIAL TOP LOOKS WHEN IN POSITION.

egress from the car. The top of the hood is also made long enough to extend over the dashboard of the car, so that when used with a windshield or storm front it will give the same result as a coop top for stormy weather, and is an ideal equipment for physician's use. The operation of raising or lowering the top only involves the use of two thumb screws, which are loosened from their position at the upper part of the center socket, and placed at the bottom of the same socket, or vice versa. When folded it is more compact than any style of top yet produced. For cold weather use the top is so constructed that two side curtains can be attached to the edge of the front seat with suitable fasteners which may be permanently put in place.

COUZENS RETURNS FROM EUROPE.

James Couzens, secretary and treasurer of the Ford Motor Company, and also manager of its sales department, yesterday arrived home from the other side. Two months ago he began a tour of Continental Europe and Great Britain for the purpose of studying conditions there and laying plans for a big export business in Ford cars. During the time he was away Mr. Couzens visited every country and every city of importance in the old world. The Ford company is already a large exporter of motor cars, shipping regularly twenty-four runabouts per week to London, sixteen to Berlin and eight each to Paris, Milan and Brussels. Mr. Couzens' trip will result in multiplying these numbers as well as opening up much territory never before reached by American automobile manufacturers.

ACTIVITIES OF THE NEW YORK TRADE ASS'N.

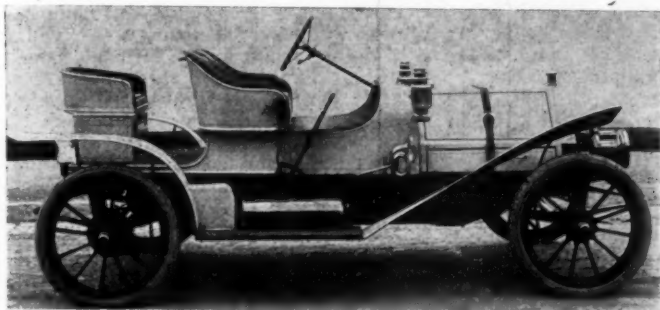
Three additions have been made to the membership of the New York Automobile Trade Association; Cimiotti Bros., agents for the Mora car; Corbin Motor Vehicle Corporation agency, and the Waltham Manufacturing Company agency.

The present officers of the association are: President, Percy Owen, of Percy Owen, Inc.; first vice-president, Frank Eveland, of A. G. Spalding & Bro.; second vice-president, E. C. Partridge, of Wyckoff, Church & Partridge; treasurer, W. P. Kennedy; secretary, and general manager, E. V. Stratton. The headquarters are in the Motor Mart, Broadway and Sixty-second street, and the telephone number is 3743 Columbus.

The association has just established a collection department for the benefit of its members, and has under consideration the organization of an employment bureau through which members may secure reliable salesmen, mechanics and chauffeurs.

EARL ROADSTERS BEING BUILT IN KENOSHA.

Kenosha, Wis., is now the home of another popular-priced car, known as the Earl Roadster, which formerly claimed Milwaukee as its home. The object of the manufacturers in producing this car has been solely to turn out a vehicle that should be light, powerful, durable and speedy, at a moderate selling price, as well as one capable of being maintained at a minimum cost. That they have succeeded in this will be quite evident from a review



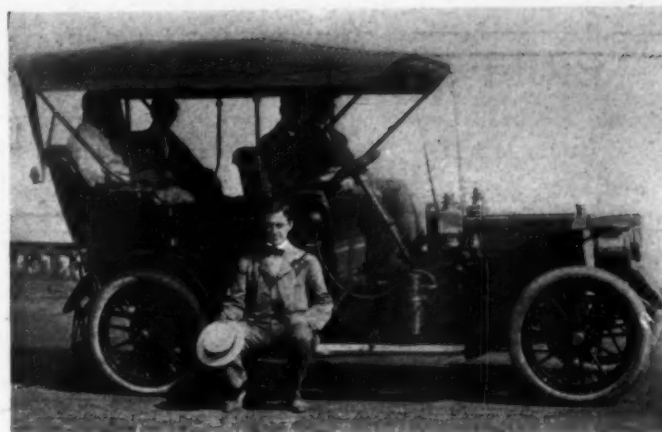
EARL LIGHT ROADSTER FOR 1908 WITH FOLDING SEAT.

of the following specifications: The motor is of the horizontal, double-opposed type, located under the hood forward, and is rated at 15 horsepower. The ignition is of the high-tension type, current being supplied by two sets of dry cells, carried in a battery box on the running board.

The transmission is of the friction type, providing four forward speeds and reverse, all of which are controlled by a single side lever in much the same manner as a sliding gear. The friction wheel is carried on a countershaft, on the ends of which are two sprockets for the final drive, which is by means of special silent chains. Two sets of brakes are provided, the running brakes being in the rear hubs. A channel section, pressed steel frame forms the foundation of the chassis, which is carried on four full-elliptic springs of liberal dimensions and which in turn are supported on 30 by 3-inch artillery wheels and clincher tires of this size, front and rear. The wheelbase is 100 inches and the weight of the car all on is 1,200 pounds. The control is by the usual small levers on a stationary sector over the steering wheel, and the car is capable of a speed of 40 miles an hour. Complete with the usual full equipment of lamps, it lists at \$950.

SWINEHART TIRES TO BE MADE IN EUROPE.

During his recent European business trip, B. C. Swinehart, vice-president of the Swinehart Clincher Tire and Rubber Company, of Akron, O., made arrangements with a European concern to manufacture Swinehart tires abroad. During his three months' stay Mr. Swinehart also negotiated the sale of German patents to Metzeler & Company, Munchen, Bavaria.



FIRST 1908 LOCOMOBILE GOING TO FINAL FINISH TEST.

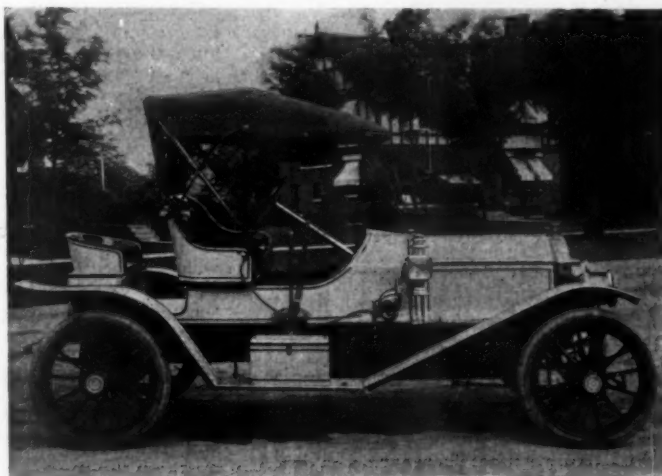
A. L. Riker, designer, is seated in the tonneau. J. A. Kingman, advertising manager, holds down the running board, and "Bill" Hall is the driver.

ENGLISH CONCERN TO ESTABLISH PLANT HERE.

KANKAKEE, ILL., Aug. 19.—It is reported here that the plant of the defunct St. Anne Kerosene Motor Company has been acquired by an English firm, which will take possession on September 1. The firm is now said to operate a plant in Wales and that its specialty is an automobile wheel, besides which it builds high-priced cars, the intention being to carry on both branches here. Color is lent to the report by the fact that a representative of the Stepney Spare Motor Wheel, Ltd., of Llanelly, South Wales, has been in this country for the past two or three months gathering statistics as to the extent of the American industry, and visited the offices of THE AUTOMOBILE before sailing.

NEW MODEL BLOMSTROM RUNABOUT FOR 1908.

Having studied out the design of the Blomstrom "Thirty" well in advance, covering every possible point of practise as exemplified by current usage on a large number of cars, the only change to be made in the Blomstrom cars for 1908 will consist of a slight increase in the size of the cylinders, which are now being made 4 5-8 inch bore by 4 1-2 inch stroke, with a consequent increase in the power of the motor. A few other detailed refinements have been found possible here and there, though with the exception of the increase in the size and power of the motor the car remains essentially the same as described in these columns several months ago. The appearance of the new Blomstrom runabout for 1908, which will be a strong feature of the line, may be judged of from the accompanying photograph.



1908 BLOMSTROM "30," FITTED WITH CAPE TOP.

BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

The Health and Street Cleaning Departments of New York City have just purchased three Lozier 40-horsepower cars.

The Gearless "Big 6" has arrived in Chicago, and its huge length of bonnet and snow white color was the sensation in automobile circles there last week.

The partnership known as the O. G. Roberts Automobile Company, with quarters at Ninth street, Columbus, O., has just been dissolved by O. G. Roberts buying out the interest of his partner, Richard Hammond. Mr. Roberts will continue the business at the same place without change.

By reclaiming a fifty-acre tract of sand flats lying southeast of its present plant, the Locomobile Company of America will be enabled to double its land holdings on the water front at Bridgeport, Conn. The new land will permit extensive factory additions from time to time and also make possible a 140-foot pier into the harbor.

It has been objected that 24-hour races really prove nothing and therefore are not helpful either to the sport or to the industry. To this A. R. Pardington, speaking unofficially, makes the rejoinder: "But why should there not be some purely entertaining or spectacular feature to the sport. If the public finds such events interesting, I can see no objection to professional promoters catering to this portion of the public."

The Milwaukee Motor Company, at present located at 615 Clybourn street, Milwaukee, Wis., will commence to move to their large new factory at Thirty-second and Burleigh streets shortly. It is the intention to install new machinery in the new plant and have it running before the old factory is dismantled preparatory to moving, so that there shall be no cessation of work that is usually incident to moving a large plant.

Judging from present conditions at the factory of the Electric Vehicle Company, Hartford, Conn., there would seem to be little, if any foundation, for the alleged rumor that the limousine body was becoming passé. Instead of being a winter equipment alone, there are a great many users who now specify limousine bodies for both summer and winter use, the lowering of the liberal-sized windows readily converting the car into practically an open type with little trouble.

The great possibilities attending the use of automobiles as conveyors of mail over rural free delivery routes were clearly shown by a recent test made at South Bend, Ind. The route selected was 25 miles long, numbered 115 families and is said to be the hardest in St. Joseph county, Ind. With a horse and wagon eight hours are required for the carrier to get over this route, but in the recent test the mail carrier drove a Studebaker electric and covered it easily in three hours.

Owing to the need for expansion, the H. H. Franklin Manufacturing Company, Syracuse, N. Y., has just leased the old Syracuse bicycle plant in that city for a term of two years. There are two buildings, one 132 by 40, five stories high, and another 80 by 32, four stories high, giving a combined floor space of 35,000 square feet. The new quarters are to be devoted

to the sundry stock department and the painting and finishing department, and more men will be added to the working force, together with the increased facilities.

The recently organized Winston Automobile Company has just opened for business in Charlotte, N. C., and forms a notable addition to the State's automobile establishments. The large building on the corner of Fourth and Elm streets has been renovated, and is now fully stocked with cars and accessories. Joseph Hamlin, the manager of the company, was with the Forsyth Sporting Goods Company for some time, beside being known as one of the best mechanics and auto experts in the State.

The Empire State Tire Company is the title of a new concern just organized in Buffalo, N. Y., for the purpose of manufacturing a puncture-proof tire. It is capitalized at \$20,000, and a factory site is now being looked for in Buffalo. The construction of the new tire involves the use of jointed, copper-plated, steel discs arranged in the tread or layer of rubber, without interfering with the flexibility of the latter, and placed so as to practically form a continuous band, thus effectively preventing punctures.

Muncie, Ind., has an acquisition which most of the citizens knew little or nothing about until it had actually happened. This is the location of the Rider-Lewis Motor Car Company, which has rented the plant of the old Anchor Silver Plate Company, and is already converting it into an automobile factory. The plant is expected to be ready by about the middle of September and the first cars are promised for early in October. They will be six-cylinder cars from the designs of Ralph C. Lewis. The company was recently incorporated with a capital of \$150,000, the incorporators being William A. Rider, Indianapolis; Ralph C. Lewis, Muncie; George D. Rider, Kentland, Ind.; R. E. Stevenson, Muncie, and Hiram D. Lingle, Denver, Col. The incorporators are also the directors.

It is interesting to note that the longest endurance run ever undertaken, the race from Pekin to Paris—a distance of more than 6,000 miles over a trackless wilderness—was made in a car provided at every point with ball bearings. These were of the D. W. F. German make and their performance is noteworthy, as owing to the necessity of carrying everything in the shape of supplies, the car was extremely heavy. The Hess-Bright Manufacturing Company, Philadelphia, is just in receipt of a cable from the home office in Berlin as follows: "Prince Borghese made automobile trip, Pekin-Paris, on our bearings, which stood up excellently without replacement." The Italian victor of the longest race ever run was also enthusiastic over the good qualities of Vacuum Mobiloil, which he used throughout the entire trip with great satisfaction.

NEW AGENCIES ESTABLISHED.

Buckwalter & Burnell are the new agents for the Stearns line in Chicago, and have opened quarters in the salesrooms formerly occupied by the Buick agency at 1412 Michigan avenue.

The Tokheim Manufacturing Company, Cedar Rapids, Iowa, have opened

a Chicago branch on "Automobile Row," and intend to make a strong campaign for business in Chicago and that city's adjacent territory.

It has been reported that the H. H. Franklin Company, of Syracuse, N. Y., in opening new branch headquarters in New York City, would occupy the premises recently vacated by the Aerocar Company, but instead they will be situated in the Severn Building, located at the southeastern corner of Broadway and Seventy-third street, extending to Amsterdam avenue and facing on Sherman square, so that while not in the same building, the new salesrooms are in the immediate locality indicated.

September 1 the Winton Motor Carriage Company, of Cleveland, O., will open a branch house of its own in San Francisco, Cal. A new building occupying the territory on Van Ness avenue, between Birch and Grive streets, has been in course of construction after plans drawn for the Winton company, and is now nearing completion. The site is within a block of the city hall, thus opening up a new automobile center, while the structure itself will be both ornate and spacious, furnishing one of the finest automobile homes on the coast. Charles M. Brown, who scored so highly as manager of the Winton company's Chicago branch, is to have charge of the new establishment, and will have under him a staff largely recruited from the Winton factory. Harry L. Owesney, late of Cook & Owesney, and since district supervisor for the Winton company, will be Mr. Brown's chief lieutenant. Mr. Brown's successor in Chicago will be B. C. Day, who has been associated with that department for several seasons. The new San Francisco branch is the tenth establishment maintained by the Winton company, others being situated in London, New York, Boston, Philadelphia, Pittsburg, Cleveland, Detroit and Seattle.

PERSONAL TRADE MENTION.

W. H. Dougherty, for some time connected with the head office of the G & J Tire Company, Indianapolis, Ind., has recently severed his connection with concern.

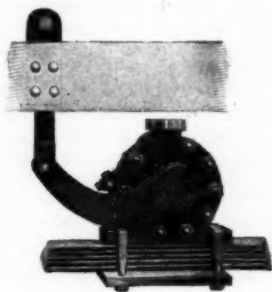
R. A. Wadsworth, formerly of the Excelsior Supply Company of Chicago, has been engaged by the Buick Motor Company, Chicago branch, as manager of the accessory department, and will install a full line of accessories and supplies at once.

F. J. Pardee announces his resignation as sales manager of the St. Louis Car Company, to take effect September 1, and though it is understood he has already been placed in a similar rôle with another well known concern, no details are forthcoming at the moment.

Ernest Waterman has just been appointed sales manager for the Hartford Suspension Company, manufacturers of the Hartford-Truffault shock absorbers, and as the number of manufacturers who are now employing the latter as a part of the regular equipment of their cars, as well as the jobbers and dealers, who are handling the Hartford, is rapidly increasing, Mr. Waterman will doubtless find plenty to do.

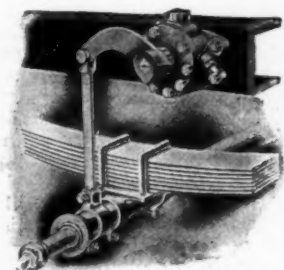
INFORMATION FOR AUTO USERS.

Hotchkiss Anti-Jolt Device.—For the season of 1908 the Hotchkiss Manufacturing Company, 1256 Michigan avenue, Chicago, will market two models of the well-known Hotchkiss Anti-Jolt Device, to be designated as Model 100, the type with which the automobilist public has already become familiar, and Model 101, which



MODEL 100, HOTCHKISS ANTI-JOLT.

though given a separate number really only differs from the standard type in the manner of its attachment to the car, and the makers call attention to the fact that it is somewhat of a novelty nowadays to find a mechanical appliance so perfect when first put on the market that it is found profitable to put it out year after year without a single change in its vital essentials. The anti-jolt absorbers, for use on the rear axle, incorporate the attachment referred to, enabling them to be bolted to the chassis frame by simply drilling holes in the latter, the connection with the axle being made by a link together with a collar or other suitable part, as shown in the illustration. The old method of installation was found to present difficulties on some cars that could not be overcome by the mechanic entrusted with the job, hence this reversal of the method of attachment for the rear absorbers was determined upon, though both models will be made and supplied, according to the car to which they are to be fitted. The principle of the Hotchkiss



MODEL 101, HOTCHKISS ANTI-JOLT.

kin is that of forcing glycerine alternately through a large valve and a needle valve, through a small opening which may be diminished or increased to suit the weight of the car. It exerts no retarding motion while the springs are being depressed, but merely retards the throw of the springs after compression, the enclosed piston working radially like the spokes of a wheel.

Springfield Motometer's New Models.—The R. H. Smith Manufacturing Company, Springfield, Mass., makers of the Springfield motometer, are showing their progressiveness by the addition of several new and valuable features to this ster-

ling auto accessory. The most important of these is the new "maximum hand," which, as its name indicates, is a supplementary pointer traversing the vertical scale with the regular indicator but which remains at the maximum or highest speed attained, from which it may be instantly released by pressing a button. On dropping, it again returns to the point at which the regular indicator happens to be at the time. It can also be made inoperative by equally simple means, so that it travels up and down the scale together with the regular indicating hand, not even being visible to confuse the observer. The vertical scale of the motometer is well adapted to the application of a device of this nature and full advantage has been taken of that fact. In conjunction with this new indicator, the motometer will also be supplied with



THE NEWEST SPRINGFIELD MOTOMETER.

what extensive study and experiment has shown to be the very best form of dial, the new scale being calibrated with figures fired on in jet black enamel against a pure white background. Improvements have also been made in the transmission by the addition of a new tempered steel reinforcement at each end of the shafting, forming a protection against the short bend or kink at these points that is so fatal to any flexible shaft. The use of oil-tempered steel spring stock in the shaft also gives more room for the latter and produces better action under flexion. An innovation of unusual merit is to be found in the adoption of a self-clearing or rather non-clogging pinion in connection with the hub transmission, and which after exhaustive tests has been found not to clog under the most severe road conditions. So far as the appearance of the motometer or its essential features are concerned, these have undergone no changes whatever, and it will be noted that those described are rather in the nature of detailed refinements suggested by experience than radical changes necessitated by difficulties encountered, as all of them may readily be added to any of the models of the motometer now in current use.

Springfield Ratchet Screw Jack.—The latest product brought out by the Shawver Company, Springfield, O., is a powerful ratchet screw jack for cars weighing from 1,000 to 4,000 pounds. The base is of malleable iron, heavily ribbed and is made dust proof, while the screw is of the regulation type, being of steel with a four-



SPRINGFIELD RATCHET SCREW JACK.

pitch, square thread. The height of the jack over all is 12 inches, and its extreme rise 7 inches. The ratchet works in a grease-tight, malleable casing, from which both screw and ratchet are lubricated, one filling being sufficient for a season's use. The ratchet is made of steel and hardened. As shown by the accompanying illustration, when not in use, the jack is most compact, requiring very little room in the tool box, and as all its parts are securely locked together, it is absolutely rattle-proof.

Robert Spark Plugs.—The Robert Instrument Company, 56 Shelby street, Detroit, Mich., has just added a new specialty to its line of auto specialties in the shape of a spark plug for which many advantages are claimed. The insulation is composed of the best East Indian white transparent mica, and from the

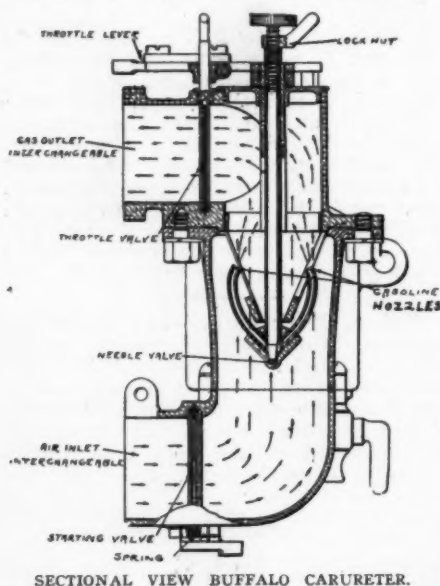


NEW ROBERTS SPARK PLUG.

extended study the makers have given the problem of spark plug construction, they claim that the vertical mica wrapping around the shank of the plug, over which the body of the insulation is compressed under great pressure, makes it leak, crack and soot-proof, regardless of

compression or temperature conditions. The plug terminals are of non-corrosive platinette, a composition which is said not to be affected by very high temperatures. The material for this purpose is imported from Sweden, the latter country already having attained a reputation as the producer of the finest materials for this purpose. The new Robert plug is made only in 1-2-inch iron pipe size.

Buffalo Carbureter.—That simplicity and fewness of small parts constitute the prime essentials of success is probably true to a greater extent of the carbureter than of any other part of the motor, and this has been fully recognized by the makers of the Buffalo carbureter. The Buffalo Carbureter Company, 889 Main street, Buffalo, N. Y. As will be seen from the accompanying sectional illustration of the Buffalo, it not only is composed of a minimum of parts, but also differs in other respects from cur-



SECTIONAL VIEW BUFFALO CARURETER.

rent forms of construction. The float chamber with its cork float is placed at one side of the tubular mixing chamber, which is of unusual length, and the fuel enters at one side of the bottom, a drain cock being placed in the center. In fact, its construction may be taken in at a glance and scarcely calls for any extended description. That it has stood the test of time in no uncertain manner is evident from the number and standing of the manufacturers, who employ it as a part of the equipment of their cars. Some of these are the De Luxe Motor Car Company, Detroit, Mich., on their Queen cars; the Ford Motor Company, Detroit, Mich.; Jackson Motor Car Company; Knox Automobile Company; Wayne Automobile Company, Wayne Works, Richmond cars; Welch Motor Car Company; the H. E. Wilcox Motor Car Company, and others. Some of its notable performances are the winning of the 24-hour race at Detroit by the Ford Six and the showing of the Haynes stock car in last year's Vanderbilt race.

Clysmic Water for Autoists.—One of the great drawbacks of touring through sparsely settled country, or in fact any great distance from home in whatever direction, has been found in the indifferent and, at times, unpleasant character of the drinking water encount-

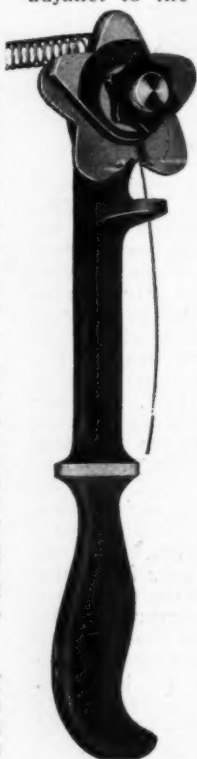
ered. To enable the autoist to avoid this the Clysmic Spring Company, 251 Fifth avenue, New York, has prepared what is termed a "special automobile package," the convenient size and contents of which are illustrated by the accompany-



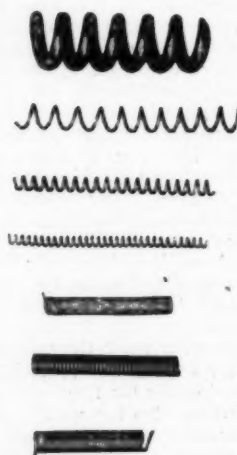
SPECIAL AUTO PACKAGE OF CLYSMIC.

ing cut. The latter consists of two quarts, two pints and five "splits" of sparkling Clysmic water, and one quart and two pints of natural Clysmic, thus providing a generous supply in a small compass. Doubtless the innovation will meet with general favor at the hands of those tourists who have not always found it possible to obtain a convenient supply of good water for drinking purposes along the road.

Perfection Spring Winders.—This is a new tool that has just been introduced to the automobile trade, and its value as an adjunct to the shop outfit of every repairer as well as to the tool kit of every autoist will be apparent at a glance, as it can be used with a lathe, drill or vise, and will wind compression or extension springs



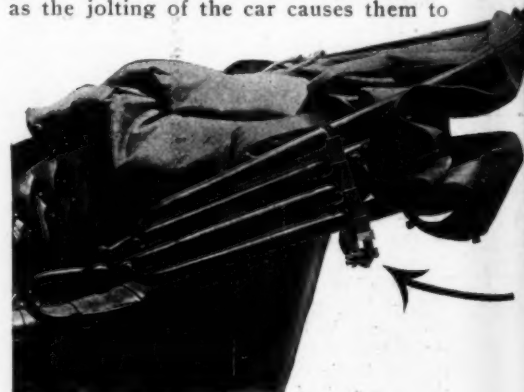
PERFECTION WINDER.



of any length from any gauge of wire. To use, a spacing washer of the thickness desired is selected on the web and

moved opposite the handle. The end of the spring wire is then passed through a hole in the lug cast on the handle, as shown by the accompanying illustration of the complete tool. From here it is passed through the brass friction washers, at the same time passing through the hole in the stud on which the washers rotate. Then the end of the spring wire thus drawn through is fastened on the arbor, the spacing washer is rested against the arbor and the nut on the stud tightened to give the required tension, care being necessary to give the proper amount of tension as the wire passes through the friction washers, the makers stating that the wire should be dragged through the washers rather than pass through loosely. In winding, a slight pressure to the left produces a uniform spacing of the coils of the spring. A lefthand spring may be wound by reversing the operation described, starting from the opposite end of the arbor. The Remington Tool & Machine Company, Boston, Mass., is the manufacturer.

Gleason Cushioned Bow Rest.—The almost universal use of the cape top has brought with it a demand for some simple and effective device for the protection of the bows when the top is down, as the jolting of the car causes them to



GLEASON BOW REST IN SERVICE.

rattle and, if not restrained, to break and also damage the top itself. To prevent this the India Rubber Tire Company, 477 Wabash avenue, Chicago, Ill., have just placed on the market a device known as the Gleason Cushioned Bow Rest, which, in design, is extremely simple. It is made of a number of sections of pure rubber with a leather strap running through them, while a metal holder screws on to the bracket and holds it in place. It is adjustable and will fit any machine, the illustration showing one with four openings, but they are made with three and five openings also.

Aluminum Solder.—One of the greatest disadvantages inherent in aluminum has been the impossibility of soldering it by ordinary means, which accordingly greatly restricted its uses. Now, however, an aluminum solder is being placed on the market by the Aluminum Solder and Refining Company, of Oswego, N. Y. The invention dates back to about a year ago, and it is the claim of the makers that it will not only join aluminum to itself by soldering, but will also permit of its being joined to other metals, and as aluminum is an electrical conductor, this invention will open a broad field of usefulness to aluminum in the latter industry. They give an absolute guarantee with every bar of solder.